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HOOKER'S

ICONES PLANTARUM;

OR,

FIGURES, WITH DESCRIPTIVE CHARACTERS AND REMARKS,
OF NEW AND RARE PLANTS,

SELECTED FROM THE

KEW HERBARIUM.

FOURTH SERIES.

EDITED FOR THE BENTHAM TRUSTEES BY

DANIEL OLIVER, F.R.S., F.L.S.

EMERITUS PROFESSOR OF BOTANY IN UNIVERSITY COLLEGE, LONDON: LATE KEEPER OF THE HERBARIUM AND LIBRARY, ROYAL BOTANIC GARDENS, KEW.

Under the Authority of the Director of the Royal Botanic Gardens, Kew.

VOL. II.

OR VOL. XXII. OF THE ENTIRE WORK.

PART I. 2101–2125, July 1892.
PART II. 2126–2150, March 1893.
PART III. 2151–2175, October 1893.
PART IV. 2176–2200, April 1894.

DULAU & CO.

37 SOHO SQUARE, LONDON.

1894.

PRINTED BY
SPOTTISWOODE AND CO., NEW-STREET SQUARE
LONDON

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VOL. II.—PART I.] [JULY.

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M.S.del, et lith.

Plate 2101.

CERATOSTYLIS HIMALAICA, *Hook. f.*

Orchideæ. Subtribe Cœlogyneæ.

C. himalaica, *Hook. f. Fl. Brit. Ind.* v. 826; caulibus fasciculatis brevibus simplicibus v. ramosis vaginis lanceolatis acuminatis membranaceis imbricatis opertis, pseudobulbis 0, foliis anguste lanceolatis acuminatis, floribus subsolitariis breviter pedunculatis, bractea lanceolata, ovario sessili sepalisque araneosis, sepalis lateralibus late triangulari-ovatis subacutis, petalis lineari-lanceolatis acuminatis, mento brevi rotundato, labello brevi obovato-oblongo saccato carnosulo, dorso apicem versus gibboso et papilloso, columnæ ramis brevibus. Eria ramosissima, *Wall. MSS.*

Hab. Eastern tropical Himalaya; E. Nepal, *J. D. H.*; Bhotan, *Griffith*; Khasia Hills, *Gibson* (*Ic. in Herb. Calcutt.*).

Caules 2–4-pollicares, dense cæspitosi, simplices v. ramosi, radicibus fibrosis; vaginæ $\frac{1}{2}$–$\frac{3}{4}$ poll. longæ, erectæ, laxe imbricatæ, scariosæ, striato-nervosæ. *Folia* 2-2$\frac{1}{2}$ poll. longa, subacuta v. acuminata, coriacea v. subcarnosa, sessilia v. in petiolum brevem angustata. *Pedunculi* vaginis immersi, uniflores, floresque sparse araneoso-pubescentes; bractea lanceolata, ovario æquilonga. *Flores* minuti; sepala lateralia pallide rosea, 3–5-nervia; petala 3-nervia, alba, purpureo fasciata; labellum obscure 3-lobum, lobis lateralibus purpureo marginatis, terminali aureo. *Columna* brevissima, reniformis. *Capsula* $\frac{1}{4}$ poll. longa, ellipsoidea, crasse costata.

The plate is copied from a coloured drawing in the Calcutta Herbarium inscribed '*Eria ramosissima*, Wall., Mr. Gibson's Churra collection.' It represents the flowers as considerably larger than in the native specimens.—J. D. H.

Fig. 1. Flower. 2. Bract, ovary, and column. 3. Anther. 4. Pollinia. *All enlarged.*

M.S. del. et lith.

PLATE 2102.

CERATOSTYLIS LANCIFOLIA, *Hook. f.*

ORCHIDEÆ. Subtribe CŒLOGYNEÆ.

C. lancifolia, *Hook. f. Fl. Brit. Ind.* v. 826; caulibus fasciculatis erectis simplicibus vaginis elongatis laxis lævibus tectis, pseudobulbis 0, foliis anguste lineari-lanceolatis acutis erectis, membranaceis, floribus solitariis, pedicello ovarioque puberulis, bractea minuta tubulosa, sepalis lateralibus oblongo-lanceolatis acutis, petalis lanceolatis acutis, mento perbrevi 2-lobo, labelli angusti recti hypochilo anguste oblongo epichilo angustiore pugioniforme terminato, columnæ ramis erectis.

HAB. Malayan Peninsula; Perak, *Scortechini.*

Caules 2–4 poll. longi, radicibus fibrosis; vaginæ $\frac{1}{2}$–$1\frac{1}{2}$ poll. longæ, teretes, subinflatæ, acutæ v. acuminatæ, striato-nervosæ. *Flores* $\frac{1}{3}$ poll. diam.; labellum carnosum, breviter unguiculatum, epichilo tereti hypochilo planiusculo paullo longiore. *Columnæ* rami antheram longe superantes, oblongi, obtusi.—J. D. H.

Fig. 1. Flower, with lip removed. 2. Side view of flowers. 3. Lip. *All enlarged.*

Pl 2103.

M.S del,et lith.

Plate 2103

CERATOSTYLIS ROBUSTA, *Hook. f.*

Orchideæ. Subtribe Cœlogyneæ.

C. robusta, *Hook. f. Fl. Brit. Ind.* v. 827 ; caulibus robustis ramosis pseudobulbisque parvis terminalibus vaginis arcte imbricatis trabeculatim-nervosis tectis, folio lanceolato acuminato costato nervis utrinque 3, flore solitario pallide flavo gracile pedunculato pubescente, bractea minuta, sepalis lateralibus late ovatis obtusis, dorsali multo minore, mento calcariforme apice subinflato truncato sub-bilobo, petalis elliptico-lanceolatis obtusis, labello longe et anguste unguiculato spathulato concavo apice acuto carnoso, columnæ ramis magnis erectis.

Hab. Malayan Peninsula ; Perak, alt. 4,900 feet, *Wray.*

Caules 8–10 poll. longi v. longiores, hic illic radicantes ; vaginæ $\frac{1}{2}$–$\frac{3}{4}$-pollicares, membranaceæ, acutæ, supremæ pseudobulbis longiores. *Pseudobulbi* $\frac{1}{2}$ poll. longi, teretes. *Folia* 4–5 poll. longa, $\frac{2}{3}$–1 poll. lata, coriacea, costa valida. *Scapus* vaginis inclusus ; ovarium unacum pedicello $\frac{1}{2}$-pollicares. *Flores* $\frac{1}{2}$ poll. longi, pubescentes, mento (seu calcare) sepalis lateralibus æquilongo ; sepala 5–7-nervia ; petala 3-nervia ; mentum sepalis æquilongum. *Columnæ* brachia antheram superantia.

The receipt of several new species of *Ceratostylis* during the progress of the 'Flora of British India' has modified its generic character. That given in the key to the genera of British Indian Orchids, at p. 671 of vol. v., is especially faulty, and should be replaced by 'Flowers solitary or in a lax fascicle, axillary to the pseudobulb of the terminal leaf. Column with two erect arms, pollinia 8.'—J. D. H.

Fig. 1. Side view of flower. 2. Front view of flower, with lip removed. 3 and 4. Lips. 5. Column. *All greatly enlarged.*

3.
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Plate 2104.

CŒLOGYNE OCCULTATA, *Hook. f.*

Orchideæ. Subtribe Cœlogyneæ.

C. occultata, *Hook. f. Fl. Brit. Ind.* v. 832; rhizomate robusto ascendente vaginato, pseudobulbis turbinatim obovoideis sulcatis acute costatis, foliis ellipticis acutis, scapo e basi pseudobulbi enato ascendente toto vaginato, vaginis coriaceis supremis subfoliaceis, floribus paucis breviter pedicellatis vaginis bracteisque obtectis albis, sepalis petalisque paullo angustioribus oblanceolatis acutis, labelli hypochilo lobis rotundatis carinis 2 crassis crenatis percurso epichilo ovato-rotundato crenato, lamina incrassata disco adnata.

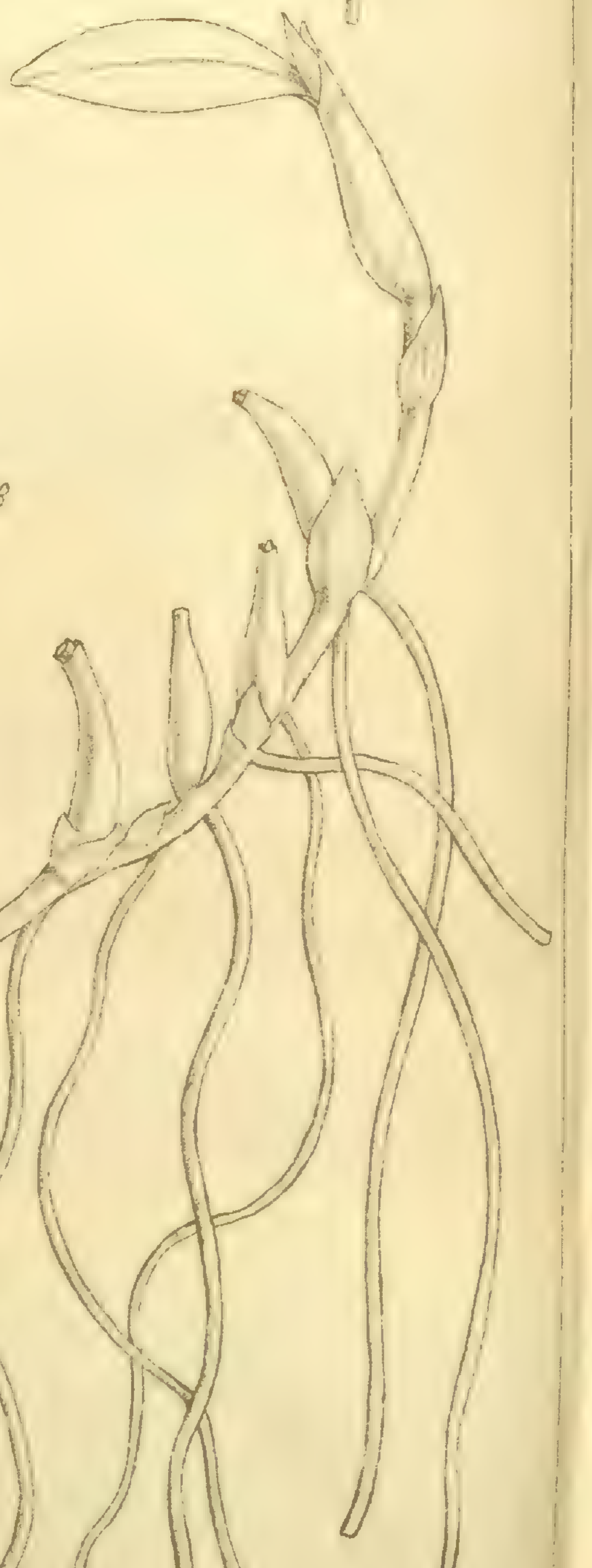
Hab. Sikkim Himalaya, *Griffith's Collectors* (*Ic. in Herb. Calcutt.*).

Rhizoma crassitie pennæ olorinæ, internodiis brevibus. *Pseudobulbi* 1–1½-pollicares, sessiles, angulis demum undulatis intervallis latis concavis lævibus. *Folia* subsessilia v. breviter petiolata, coriacea, 2–3 poll. longa, 5-nervia. *Scapus* 1–2-pollicaris, unacum vaginis crassitie pennæ olorinæ, vaginis viridibus arcte imbricatis pollicaribus acutis. *Flores* conferti; bracteæ pollicares, oblongæ, acutæ; sepala pollicaria, interdum flavo-marginata; labellum rubro-lineolatum, lobi laterales plaga brunnea semilunari notatis, carinis brunneo-marginatis. *Columna* apice dilatata, truncata.

The plate is from a coloured drawing in the Calcutta Herbarium, which has supplied some characters for the description, the specimens being very incomplete.—J. D. H.

Fig. 1. Dorsal; and 2, lateral sepals. 3. Petal. 4. Lip. 5. Column. 6. Anther. *All enlarged.*

2.



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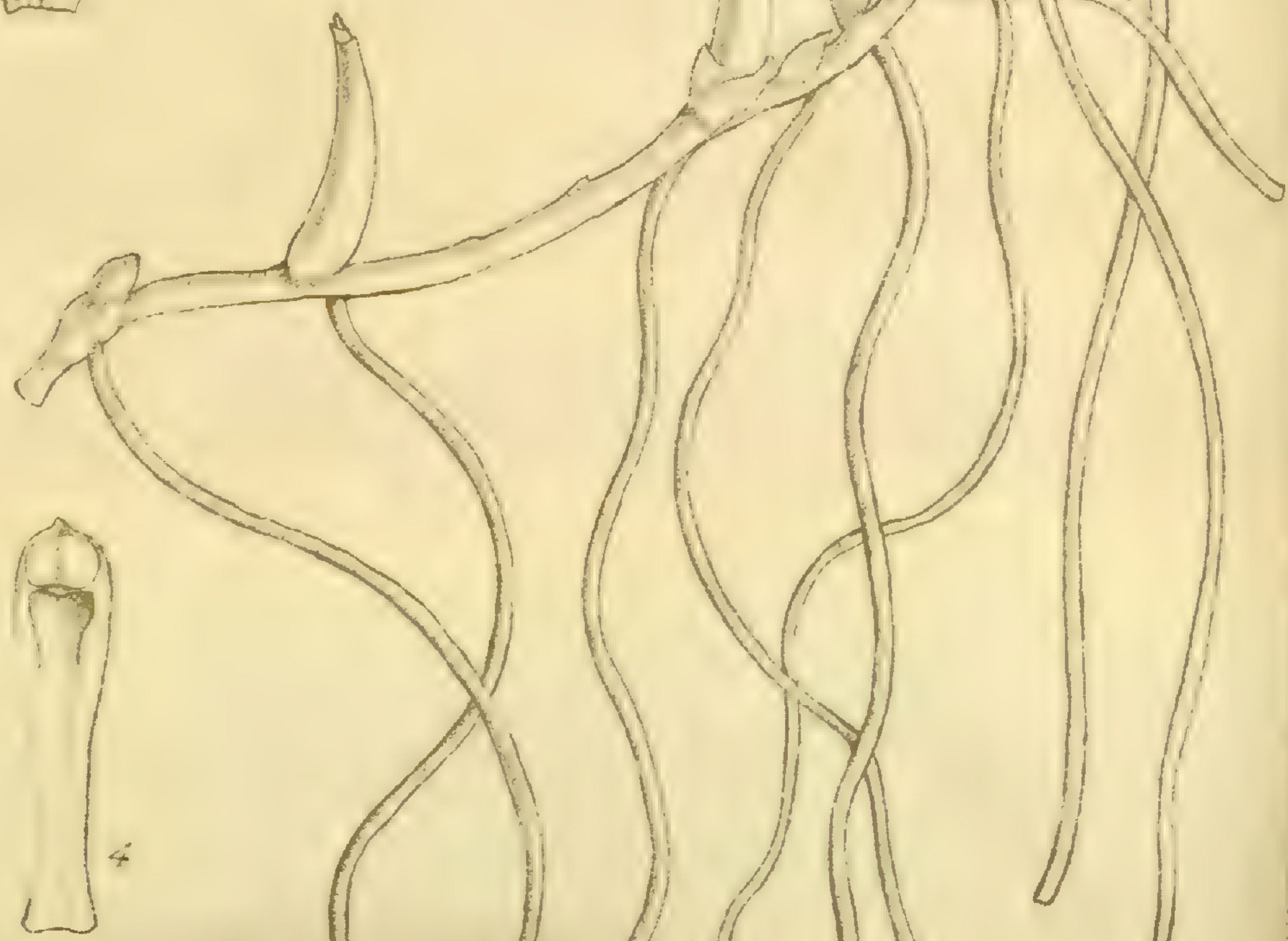

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M S del.et lith.

Plate 2105.

CŒLOGYNE TREUTLERI, *Hook. f.*

Orchideæ. Subtribe Cœlogyneæ.

C. Treutleri, *Hook. f. Fl. Brit. Ind.* v. 837 ; rhizomate repente nudo, pseudobulbis parvis curvis angustis teretibus basi vaginatis, foliis parvis elliptico-lanceolatis, scapo in pseudobulbum terminali brevi unifloro ?, sepalis lateralibus lanceolatis acuminatis, petalis anguste linearibus, labelli hypochilo breviusculo lobis oblongis obtusis lamellis 3 percurso, epichilo majore orbiculari apice obtuse tridentato disco lævi.

Hab. Sikkim Himalaya, *Treutler.*

Rhizoma crassitie pennæ anatinæ. *Pseudobulbi* rhizomate remoti, $\frac{1}{2}$–$\frac{2}{3}$ poll. longi, superne sensim attenuati. *Folia* pollicaria. *Scapus* $\frac{3}{4}$-pollicaris, basi vaginatus; bracteæ caducæ. *Flores* $1\frac{1}{2}$ poll. diam., sepalis 7–9-nerviis ; petalis 1-nerviis ; labellum basi saccatum, hypochilo epichilo breviore. *Columna* anguste alata, apice rotundata apiculata.

I have seen only the one specimen here figured.—J. D. H.

Fig. 1. Dorsal sepal. 2. Petal. 3. Lip. *All enlarged.*

M S del et lith

PLATE 2106.

CŒLOGYNE STENOCHILA, *Hook. f.*

ORCHIDEÆ. Subtribe CŒLOGYNEÆ.

C. stenochila, *Hook. f. Fl. Brit. Ind.* v. 837; rhizomate repente, pseudobulbis parvis teretibus basi vaginatis, foliis sessilibus ovato- v. elliptico-oblongis, scapo in pseudobulbum terminali brevi basi et apice nudo, racemo elongato multifloro flexuoso, floribus inter minoribus albis, sepalis lateralibus ovato-lanceolatis, petalis anguste linearibus, labelli hypochilo elongato in lobos parvos obtusos producto, epichilo breviore latiore orbiculari, disco tricarinato.

HAB. Malayan Peninsula; Perak, summit of Gunong Batu Pateh, alt. 6,700 feet, *Wray*.

Rhizoma crassitie pennæ corvinæ, nudum?. *Pseudobulbi* $\frac{1}{2}$–$\frac{3}{4}$-pollicares, læves. *Folia* 1–1$\frac{1}{2}$ poll. longa, $\frac{1}{2}$–$\frac{2}{3}$ lata, subacuta, rigida, subtus 3–5-costata. *Scapus* compressus, foliis brevior; racemus 8-pollicaris, articulatus; bracteæ deciduæ. *Flores* 1 poll. diam.; sepala 3-nervia; petala uninervia; labellum basi saccatum. *Columna* apice truncata, 3-loba.

The only specimen is that here figured; the flowers were detached.—J. D. H.

Fig. 1. Flower, with one lateral sepal and a petal removed. 2. Lip. *Both enlarged.*

M.S del. et lith.

Plate 2107.

CŒLOGYNE CARNEA, *Hook. f.*

Orchideæ. Subtribe Cœlogyneæ.

C. carnea, *Hook. f. Fl. Brit. Ind.* v. 838; rhizomate valido vaginato, pseudobulbis elongato-fusiformibus teretibus nudis, foliis petiolatis ellipticis obovatis v. oblanceolatis, scapo in pseudobulbum terminali breviusculo erecto compresso basi et apice nudo, racemo elongato multifloro flexuoso, sepalis oblongo-lanceolatis acuminatis, petalis elongato-subulatis, labelli hypochilo brevi, lobis oblongo-rotundatis epichilo rotundato emarginato incumbentibus, disco basin versus lamellis 2 instructo, columna superne dilatata apice obtusa.

Hab. Malayan Peninsula; Perak, *Scortechini*.

Rhizoma crassitie pennæ olorinæ; vaginis brevibus, terminali longiore basin pseudobulbi vaginante. *Pseudobulbi* 3–3½-pollicares, ⅓ poll. diam., læves. *Folia* 4–5 poll. longa, 1–1½ poll. lata, 1-costata, multinervia. *Scapus* unacum racemo longiore folia superans; bracteæ caducæ.

Flores 1½ poll. diam.; sepala carnea, nervis numerosis trabeculatis; petala 1-nervia. *Labellum* basi saccatum, carneum, venosum. *Columna* basi infra medium constricta, superne 2-alata; anthera rostrata vertice umbonata.—J. D. H.

Fig. 1. Flower, with lip and portions of one lateral sepal and petal removed. 2. Lip. 3. Anther. *All enlarged.*

M.S del et lith

PLATE 2108.

CŒLOGYNE GRIFFITHII, *Hook. f.*

ORCHIDEÆ. Subtribe CŒLOGYNEÆ.

C. Griffithii, *Hook. f. Fl. Brit. Ind.* v. 838; rhizoma validum, pseudobulbis lineari-oblongis compressis 4-quetris vaginis magnis cymbiformibus tectis, foliis petiolatis elliptico-lanceolatis acuminatis, scapo in pseudobulbum terminali compresso basi nudo apice infra racemum bracteis ovatis arcte distiche imbricatis tecto, racemo multifloro rachi angulatim flexuoso, floribus inter minoribus, sepalo dorsali late oblongo, lateralibus ovato-lanceolatis acutis, petalis anguste linearibus, labelli hypochilo amplo lobis rotundatis erosis disco medio lamellis 5 brevibus instructo, epichilo parvo quadrato truncato.

HAB. Upper Assam; summit of the Patkoy Mts., *Griffith*; Munnipore, alt. 4,000-5,000 feet, *Watt.*

Rhizoma crassitie pennæ anserinæ. *Pseudobulbi* 3–4-pollicares. *Folia* 5–10 poll. longa, 2–3 lata, 7-costata, petiolo 2-pollicari; racemi erecti rachis valida articulata; bracteæ caducæ. *Flores* 1 poll. diam.; ovario unacum pedicello sepalis breviore; sepala 5–7-nervia; petala 1-nervia. *Columna* apice cucullata, obtusa.—J. D. H.

Fig. 1. Flower. 2. Lip. 3. Column. *All enlarged.*

M S del et lith

PLATE 2109.

CŒLOGYNE ANCEPS, *Hook. f.*

ORCHIDEÆ. Subtribe CŒLOGYNEÆ.

C. anceps, *Hook. f. Fl. Brit. Ind.* v. 840; rhizomate crasso vaginato, pseudobulbis ellipsoideis v. fusiformibus teretibus diphyllis, foliis breviter petiolatis ellipticis acutis, scapo in pseudobulbum terminali valido compresso basi nudo apice infra racemum bracteis coriaceis arcte imbricatis tecto, racemi rachi articulato, sepalis lineari-oblongis acutis, petalis anguste linearibus, labelli hypochilo elongato in lobos laterales breves obtusos producto, epichilo latiore rotundato, disco lamellis 2 brevibus instructo, columna subacuta.

HAB. Malayan Peninsula; Perak, *Scortechini*.

Rhizoma repens, crassitie pennæ anserinæ; vaginæ breves arcte imbricatæ, obtusæ. *Pseudobulbi* nudi, substipitati. *Folia* $2\frac{1}{2}$–4 poll. longa, $\frac{2}{3}$–$1\frac{1}{2}$ lata, 7–9-costata, in petiolum validum angustata. *Scapus* unacum racemo erecto laxifloro 5–10-pollicaris, anceps v. anguste bialatus; bractea $\frac{1}{2}$ poll. longa; ovarium unacum pedicello $\frac{1}{4}$-pollicare. *Flores* 2 poll. diam. *Labelli* hypochilum epichilo duplo longior.

A handsome species, remarkable for the acute tip of the column, and very small clinandrium.—J. D. H.

Fig. 1. Flower, with one lateral sepal removed. 2. Lip. 3. Column. *All enlarged.*

M S. del et lith.

Plate 2110.

CŒLOGYNE? PURPURASCENS, *Hook. f.*

Orchideæ. Subtribe Cœlogyneæ.

C.? purpurascens, *Hook. f. Fl. Brit. Ind.* v. 842; cæspitosa, pseudobulbis angustis teretibus monophyllis, folio lineari-oblongo v. lanceolato, scapo e basi pseudobulbi erecto gracili 1–3-flore, bracteis parvis, sepalis lineari-oblongis obtusis, petalis lineari-subspathulatis, labello basi columnæ sessili spathulato concavo basi saccato disco nudo, columna anguste alata. Dendrobium purpurascens, *Thwaites, Enum. Pl. Zeyl.* 298.

Hab. Ceylon; in the elevated part of the Central Province, *Thwaites.*

Caules breves, fastigiati, radices crassas elongatas tortas epidermide inflato emittentes. *Pseudobulbi* $\frac{1}{4}$–$\frac{2}{3}$ poll. longi. *Folia* 1–4 poll. longa, $\frac{1}{6}$–$\frac{1}{2}$ poll. lata, coriacea, rigida, sæpe purpurascentia, sicca marginibus recurvis. *Scapus* 3 4-pollicaris, vaginis paucis parvis. *Flores* $\frac{2}{3}$ poll. diam., fere albidi; pedicello cum ovario $\frac{1}{4}$–$\frac{1}{2}$ poll. longo; sepala erecto-patentia, 3-nervia; petala 1-nervia; labellum suberectum, obscure crenulatum. *Columna* erecta, apice dilatata, lateribus dentatis; anthera imperfecte 4-locularis, persistens, purpurea; pollinia 4, libera, 2 majora subpyriformia, minora ovoidea. *Capsula* $\frac{1}{2}$ poll. longa, anguste oblonga v. pyriformis, alte 6-costata.

A curious little plant, certainly not a *Dendrobium*; nearer to *Cœlogyne* or *Panisea* than to any other genus; differing from the former in the entire spathulate lip not embracing the column, and from the latter in the lip having no claw.—J. D. H.

Fig. 1. Front; and 2, back view of flower, with the lip depressed. 3. Lateral view of flower, 5. Lip (its concavity not represented). 6. Anther. 7. Pollinia. *All enlarged.*

M.S. del. et lith.

Calanthe diploxiphion, Hk. f.

Plate 2111.

CALANTHE DIPLOXIPHION, *Hook. f.*

Orchideæ. Subtribe Cœlogyneæ.

C. diploxiphion, *Hook. f. Fl. Brit. Ind.* v. 849; caule brevi, foliis paucis amplis elongato-lanceolatis in petiolum latum angustatis, scapo elato remote vaginato, floribus in racemum brevem congestis pubescentibus, bracteis magnis late ovatis acuminatis pedicellis gracilibus multo brevioribus, sepalis lateralibus ovatis acutis v. acuminatis, petalis obovato-spathulatis v. oblanceolatis, labello subæqualiter 4-lobo, lobis angustis falcato-recurvis, disco basi minute carunculato, calcare gracili incurvo pedicello breviore.

Hab. Malayan Peninsula; Perak, at Goping, *King's Collector.*

Caule brevi, rhizomate lignoso. *Folia* 2, 12–20 poll. longa, 3–4 poll. lata, 5–7-costata, multinervia, petiolo valide costato. *Scapus* $1\frac{1}{2}$–2-pedalis; vaginæ basi tubulosæ, inferiores pollicares, ovato-lanceolatæ, acuminatæ; racemus 2-pollicaris: bracteæ $\frac{1}{2}$ poll. longæ, subimbricatæ virides, pedicello cum ovariis 1–$1\frac{1}{4}$-pollicari. *Flores* $\frac{1}{2}$–$\frac{2}{3}$ poll. diam., albi; labellum sepalis longius. *Columna* brevis; anthera depressa, rostrata.

I have seen only the one specimen here figured; it is most nearly allied to the Himalayan *C. alismæfolia*, the lip of which has an obcordate midlobe and a large yellow callus at the base. Except in the much smaller flowers, and very short raceme and larger bracts, it resembles *C. veratrifolia*.—J. D. H.

Fig. 1. Flower (the lateral sepals much too small and narrow). 2. Column, with base of lip and spur. *Both enlarged.*

M.S del. et lith.

Arundina Cantleyi Hk.f.

PLATE 2112.

ARUNDINA CANTLEYI, *Hook. f.*

ORCHIDEÆ. Subtribe CŒLOGYNEÆ.

A. (Dilochia) Cantleyi, *Hook. f. Fl. Brit. Ind.* v. 858: caulibus robustis foliosis, foliis sessilibus ovatis v. ovato-lanceolatis longe acuminatis basi rotundatis, floribus in paniculam terminalem decurvam latam foliaceo-bracteatam dispositis, bracteis cymbiformibus, sepalis oblongo-lanceolatis falcatis dorso infra apicem corniculatis, petalis lineari-oblongis, labello parvo trilobo lobis lateralibus oblongis v. subrotundatis terminali flabelliformi, disco carinis 5 crassis crenatis percurso, columna apice dentata.

HAB. Malayan Peninsula; Perak, on Gunong Batu, alt. 4,500–5,500 feet, *Cantley, Wray.*

Caulis 2-pedalis, crassitie pennæ olorinæ, vaginis foliorum $\frac{1}{2}$–1 poll. longis tectus. *Folia* $2\frac{1}{2}$–$3\frac{1}{2}$ poll. longa, subundulata, unicostata et multinervia. *Panicula* sessilis, ramis rigidis divaricatis basi spathaceo-bracteatis; bracteæ florales $\frac{1}{3}$–$\frac{1}{2}$ poll. longæ, subacutæ, subcoriaceæ, striatæ. *Flores* $1\frac{1}{4}$–$1\frac{1}{3}$ poll diam., straminei, sanguineo-venosi; sepalis petalisque patentibus, labello basi cuneato.

A remarkable plant, allied to *A. (Dilochia) Wallichii* of Singapore, which has elliptic-lanceolate leaves and few erect branches of the panicle. It much resembles *Eria Scortechini* (see plate 2082) in habit and inflorescence.—J. D. H.

Fig. 1. Lateral sepal. 2 and 3. Varieties of lip. 4 and 5. Side and front views of column. 6. Anther. 7. Pollinia. *All enlarged.*

M S. del. et. lith

Calanthe Mannii, H.k. f.

PLATE 2113.

CALANTHE MANNII, *Hook. f.*

ORCHIDEÆ. Subtribe CŒLOGYNEÆ.

C. Mannii, *Hook. f. Fl. Brit. Ind.* v. 850; caule brevi, foliis lanceolatis, scapo gracili pubescente foliis multo longiore, racemo multifloro, bracteis minutis, floribus parvis pubescentibus, sepalis ovato-lanceolatis, petalis oblanceolatis, labello parvo 3-lobo, lobis lateralibus oblongo-rotundatis, terminali paullo majore orbiculari emarginato v. obcordato, disci carinis 3 apices versus lamellæformibus instructo, calcare brevi obtuso.

HAB. Western Himalaya; Kumaon, below Ramkhet, *Duthie*; the Khasia Hills, alt. 4,000 feet, *Mann, Clarke.*

Caulis 2–3-pollicaris, vaginatus. *Folia* 5–6 poll longa, sessilia, 5-costata, multinervia. *Scapus* unacum racemo 6–10-pollicaris et inflorescentia pubescentes; bracteæ $\frac{1}{16}$ poll. longæ, membranaceæ. *Flores* $\frac{1}{3}$ poll. diam., nutantes; sepala 3–5-nervia; petala 1–3-nervia; labellum basi columnæ brevi adnatum, carinis disci validis, siccis rugulosis.—J. D. H.

Fig. 1. Side; and 2, front view of flower. 3. Column and lip. 4. Lip. *All enlarged.*

PLATE 2114.

CALANTHE WRAYI, *Hook. f.*

ORCHIDEÆ. Subtribe CŒLOGYNEÆ.

C. Wrayi, *Hook. f. Fl. Brit. Ind.* v. 850; subacaulis, foliis longe petiolatis ellipticis acuminatis, scapo interfoliaceo, racemo gracili puberulo multifloro, bracteis latis rigidis revolutis, sepalis ovato-oblongis acutis, petalis oblongo-lanceolatis, labello subæqualiter 4-lobo, lobis oblongis obtusis divaricatis, disco basi callis parvis pectinatis instructo, calcare gracili sepalis paullo longiore.

HAB. Malayan Peninsula; Perak, alt. 2,000 feet, *Wray*.

Folia 8–10-pollicaria, acuminata, 5–7-costata, multinervia. *Scapus* unacum racemo $2\frac{1}{2}$-pedalis, gracilis; racemus 3–6-pollicaris, laxiflorus; bracteæ ovatæ v. ovato-lanceolatæ, persistentes, siccæ sæpe tortæ; pedicello unacum ovario $\frac{2}{3}$ poll. longo. *Flores* $\frac{2}{3}$ poll. diam., albo-lilacini; sepala lateralia dorso infra apicem alato-carinata; labellum lateribus columnæ adnatum.—J. D. H.

Fig. 1. Flower. 2. Lip and column. *Both enlarged.*

M S del. et lith.

Eulophia Mannii. Hk. f.

Plate 2115.

EULOPHIA MANNII, *Hook. f.*

Orchideæ. Subtribe Eulophieæ.

E. Mannii, *Hook. f. Fl. Brit. Ind.* vi. 4; foliis floribus coetaneis lineari-elongatis subacutis, scapo elato, bracteis majusculis oblongo-lanceolatis obtusis ovario paullo brevioribus, sepalis lateralibus basi columnæ insertis oblongo-lanceolatis petalisque oblongis multinerviis, labello latiore quam longo rhcmbeo-ovato obscure 3-lobo obtuso, disco nervis 3 crassis ultra medium ramosis v. in pulvinam velutinam confluentibus percurso, calcare conico brevi. Cyrtopera Mannii, *Reichb. f. in Flora*, 1872, p. 224.

Hab. Upper Assam, *Mann.*

Caulis basi crassitie digiti minoris. *Folia* pedalia, $\frac{1}{2}$ poll. lata. *Scapus* unacum racemo laxifloro 3-pedalis; bracteæ $\frac{1}{4}$–$\frac{1}{3}$ poll. longæ. *Flores* 1 poll. diam. *Labellum* sepalis paullo brevius, lobis lateralibus rotundatis terminali obtuso. *Columna* clavata, apoda; anthera depressa; pollinia globosa.

In the 'Flora of British India' I have followed Blume in removing *Cyrtopera* from *Cyrtopodium*, and placing it under *Eulophia* as a section, characterised by the column having a foot, and the insertion of the lateral sepals on the mentum or spur of the lip. *E. Mannii* was referred to *Cyrtopera* by Reichenbach, but, as I can find no trace of such insertion of the lateral sepals, I am obliged to refer it to *Eulophia* proper. Its affinity is certainly with *E. pratensis*, Lindl., and *macrostachya*, Lindl.; but it differs from these and all others of the group to which these belong in the very narrow leaves, as well as in characters of the lip.—J. D. H.

Fig. 1. Lateral sepal. 2. Petal. 3. Column and lip. 5. Column. 6. Anther. 7. Pollinia. *All enlarged.*

M.S del et lith

Eulophia holochila, Coll. & Hemsl.

PLATE 2116.

EULOPHIA HOLOCHILA, *Coll. et Hemsl.*

ORCHIDEÆ. Subtribe EULOPHIEÆ.

E. holochila, *Coll. et Hemsl. in Journ. Linn. Soc.* xxviii. 132; foliis hysteranthiis linearibus, scapo valido elato vaginato, racemo laxifloro, bracteis lanceolatis ovario æquilongis, floribus magnis, sepalis erecto-patentibus oblongis obtusis lateralibus calcari adnatis, petalis obovato-oblongis obtusis, labello orbiculari recurvo basi in calcar incurvum obtusum producto flabellatim nervoso disco nudo ecarinato. *Hook. f. Fl. Brit. Ind.* vi. 196.

HAB. Burma; on the Shan Hills, alt. 4,000 feet, *Gen. Sir H. Collett.*

Caulis foliosus, validus, crassitie digiti minoris. *Folia* vix evoluta, 4–5 poll. longa, $\frac{1}{2}$ poll. lata, in apicem obtusam angustata. *Scapus* lateralis, unacum racemo pedalis, validus, vaginis laxis spathaceis instructus; bracteæ $\frac{2}{3}$ poll. longæ. *Flores* 2 poll. diam.; sepala 7-nervia; petala 5-nervia; labellum petalis æquilongum, basi tantum columnam amplectens. *Columna* incurva; anthera apice 3-mammillata.

I have seen but one specimen, that here figured.—J. D. H.

Fig. 1. Sepal. 2. Petal. 3. Column and lip. 4. Column. 5. Anther, seen from above. 6. Pollinia. *All enlarged.*

M.S del. et lith

PLATE 2117.

CYMBIDIUM SIKKIMENSE, *Hook. f.*

ORCHIDEÆ. Subtribe CYMBIDIEÆ.

C. sikkimense, *Hook. f. Fl. Brit Ind.* vi. 9; epiphyticum, foliis post inflorescentiam bene evolutis ensiformibus, scapo vaginato, racemo multifloro, bracteis minutis, sepalis patentibus lateralibus lanceolatis subfalcatis, dorsali lineari-oblongo erecto, petalis elliptico-ovatis acutis, labello rhombeo-ovato patente integro v. obscure 3-lobo, disco callis 2 parvis instructo ceterum ecarinato et inappendiculato.

HAB. Sikkim Himalaya; Lachen Valley, alt. 6,000 feet, *J. D. H.*

Rhizoma crassum. *Scapus* unacum racemo pedalis, decurvus; vaginis compressis basalibus brevibus, superioribus elongatis foliaceis; bracteæ $\frac{1}{6}$ poll. longæ, ovatæ, acutæ; ovarium unacum pedicello $\frac{1}{2}$–$\frac{2}{3}$ poll. longo. *Flores* $1\frac{1}{2}$ poll. diam.

This species I found only twice, on both occasions in full flower in the month of May, with the leaves (as represented) in a very young state. It is the only plant of the genus known to me in which the flowers precede the foliage, except the very curious *C. macrorhizon*, Lindl., a terrestrial parasitic species with an underground rootstock, of which the foliage is unknown, if indeed it bears any other than subfoliaceous sheaths at the base of the scape.—J. D. H.

Fig. 1. Dorsal; and 2. lateral sepal. 3. Petal. 4. Column and lip. 5. Column. 6. Anther. *All enlarged.*

M.D. del. et lith.

Thecostele Maingayi Hk.f.

Plate 2118.

THECOSTELE MAINGAYI, *Hook. f.*

Orchideæ. Subtribe Cymbidieæ.

T. Maingayi, *Hook. f. Fl. Brit. Ind.* vi. 20; foliis ellipticis v. obovato-oblongis in petiolum angustatis, sepalis lateralibus late ovatis acuminatis, petalis lanceolatis acuminatis, labelli parvi lobis lateralibus flabelliformibus terminali late ovato, auriculis basi uncinatim incurvis obtusis.

Hab. Malacca, *Maingay*.

Pseudobulbi $\frac{2}{3}$–1-pollicares, late ovato-oblongi, compressi, alte costati. *Folia* 3–4 poll. longa, 1–$1\frac{1}{4}$ poll. lata, obtusa, nervosa. *Racemus* 4–5-pollicaris, decurvus, laxiflorus, breviter pedunculatus; bracteæ parvæ, ovatæ. *Flores* 1 poll. diam.; sepala 5-nervia, dorsali angustiore; petala 3-nervia; labellum parvum, velutinum.

Under plate 2065 of this work I have, when describing *Collabium Wrayi*, suggested the transference of that genus to *Vandeæ*, and a comparison of the structure of its flower with that of *Thecostele* supports this view. The column, with its long arms and tubular base, the insertion on the latter of the lateral sepals, and the small hairy lip with two basal auricles or lateral lobes (see note under the following plate) are identical in the two genera. A better knowledge of the pollinia from living specimens is in both wanted, before determining whether they should be retained as separate genera, and whether referred to *Vandeæ* or *Epidendreæ*. The figure of the pollinia of *Thecostele Zollingeri* (*alata*, P. et R. f.) given in the 'Transactions of the Linnean Society' (xxx. t. 29) requires confirmation. Maingay (who regards this as a form of *quinquefida*) describes it in his manuscripts, and figures the pollinia as four, terminating a long narrow strap dilated upwards and with a glandular base: hence truly Vandeous.—J. D. H.

Fig. 1. Flower. 2. Lip. 3. Column. *All enlarged.*

M. S. del. et lith.

Thecostele quinquefida Hk. f.

Plate 2119.

THECOSTELE QUINQUEFIDA, *Hook. f.*

Orchideæ. Subtribe Cymbidieæ.

T. quinquefida, *Hook. f. Fl. Brit. Ind* vi. 20; foliis lineari-elongatis in petiolum angustatis, sepalis lateralibus late ovatis acutis dorsali oblongo, petalis lineari-lanceolatis, labelli 3-lobi lobis lateralibus acinaciformibus terminali late ovato, auriculis basi linearibus erectis.

Hab. Malacca, *Maingay.*

Pseudobulbi 1–1½-pollicares, ovato-oblongi, compressi, obtuse costati. *Folia* 5–7 poll. longa, 1–1½ poll. lata, apice obliquo obtuso. *Racemus* 2–3-pollicaris, gracilis, decurvus, breviter pedunculatus, laxiflorus; bracteæ parvæ, ovatæ. *Flores* ⅔ poll. diam.; sepala lateralia patentia, 5-nervia, dorsali incurvo; petala obtusiuscula, 3-nervia; labellum puberulum.

In this genus the lobing of the lip has been variously described, dependent on the view taken of the small divisions at the base of the lamina; these I have described under *T. quinquefida* in the 'Flora of British India,' as the normal side lobes of the lip, and regarded the broad blade as a 3-lobulate midlobe. I now think that the smaller divisions should more properly be regarded as auricles or appendages of the lip, and have hence so described them here in this and the preceding species. For an observation on the affinities of *Thecostele,* see under the description of the preceding plate.—J. D. H.

Fig. 1. Flower, with portion of one lateral sepal and of one petal removed. 2. Dorsal sepal, column, and lip. *Both enlarged.*

M S. del et lith.

Diploprora Championi, Hk f.

Plate 2120.

DIPLOPRORA CHAMPIONI, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

Diploprora, *Hook. f. Fl. Brit. Ind.* vi. 26; *Sepala* patentia, late ovata, obtusa, dorso alato-carinata. *Petala* ovato- v. obovato-oblonga, obtusa. *Labellum* sepalis æquilongum, marginibus basi columnæ adnatis, cymbiforme, abrupte in caudam a latere compressam apice bicaudatam angustatum, disco carina erecta lamelliformi instructo. *Columna* brevissima, apoda. *Anthera* 2-locularis; pollinia globoso-obovoidea 2-loba, supra apicem stipitis linearis inserta; glandula squamæformi.—Herba *epiphytica*, *caule simpliciusculo*, *basi vaginato radicante*, *superne crassiusculo folioso*. Folia *disticha*, *ovato- v. oblongo-lanceolata*, *subfalcata*, *flaccida*. Pedunculus *oppositifolius*, *crassus*, *erectus*, *pauciflorus*; bracteæ *majusculæ*, *obtusæ*. Flores *erecti*, *sessiles*, *flavidi*, *labello roseo-tincto*; *ovario brevi*.

D. Championi, *Hook. f. Fl. Brit. Ind.* vi. 26. Cottonia Championi, *Lindl. in Hook. Journ. Bot.* vii (1855) 35: *in Journ. Linn. Soc.* iii. 39; *Benth. Fl. Hongk.* 357. Luisia bicaudata, *Thwaites, Enum. Pl. Zeyl.* 302. Vanda bicaudata, *Thwaites*, l. c. 429.

Hab. Bhotan Himalaya, *Gammie*; Khasia Hills, alt. 3,000–4.000 feet, *J. D. H.* et *T. T.*; Tenasserim, *Parish*; Ceylon, in the Ambagamowa and Saffragam districts; Hongkong, on Victoria Peak, *Champion*.

Caulis 2–4 poll. *Folia* patula, 3–4 poll. longa, $\frac{1}{2}$–$\frac{3}{4}$ poll. lata, membranacea, apice acuto obtuso v. emarginato, sicca multinervia. *Pedunculus* foliis longior, basin versus pauci-bracteatus, strictus v. subflexuosus; racemus erectus. *Flores* $\frac{1}{2}$ poll. longi, sepalis 7-nerviis, petalisque 5-nerviis aureis, labello albo roseo irrorato; ovario sigmoideo.

Of the three genera to which this curious Orchid had been referred, it is perhaps nearest to *Vanda*, from which it differs in habit, the membranous leaves, small flowers, broad bases of the sepals, and remarkable lip. From *Luisia* the flat membranous leaves at once distinguish it. *Cottonia* differs totally in habit, and in the large flat lip. In short, the lip of *Diploprora* is quite peculiar in its long narrow forked tip, and the broad flat erect longitudinal plate that occupies its disk.

The generic description which is here given will supersede that of the 'Flora of British India,' being aided by a beautiful coloured drawing by Mr. Parish, made in Moulmein in August 1869.—J. D. H.

Fig. 1. Flower. 2. Sepal. 3. Column and lip, with one half of the body of the latter removed. 4. Anther. 5 and 6. Pollinia. *All enlarged.*

M S del. et lith.

Sarcochilus hirtulus, Hk.f.

PLATE 2121.

SARCOCHILUS HIRTULUS, *Hook. f.*

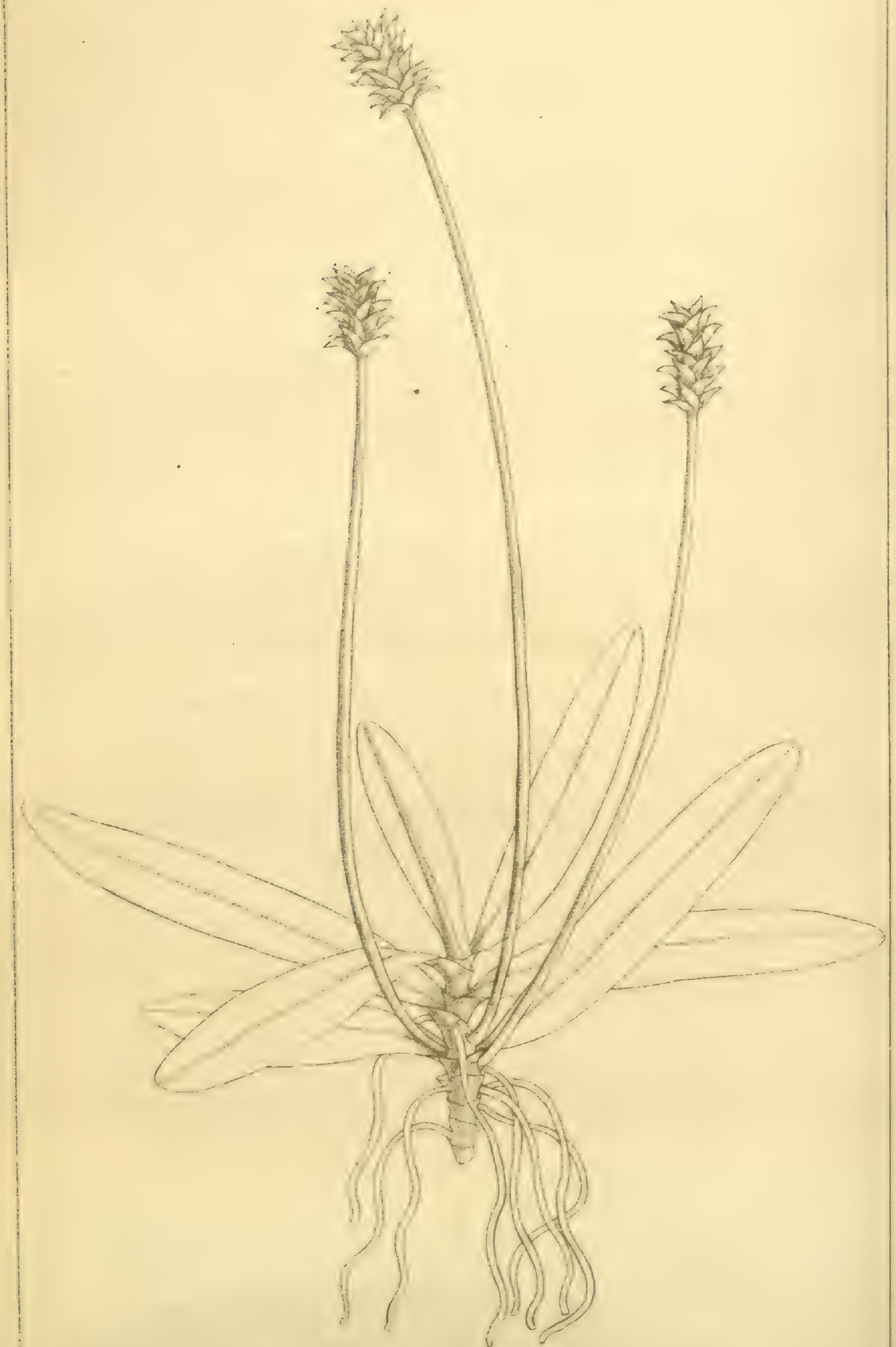
ORCHIDEÆ. Subtribe SARCANTHEÆ.

S. hirtulus, *Hook. f. Fl. Brit. Ind.* vi. 39; caulibus brevibus fasciculatis, foliis anguste lanceolatis falcatis obtuse acuminatis, scapis vaginas inferiores perforantibus foliis multo brevioribus gracilibus hirtulis remote paucifloris, bracteis minutis, sepalis ovatis v. ovato-oblongis subacutis, petalis angustioribus, labello breviter unguiculato basi in saccum elongatum inflatum producto 3-lobo, lobis lateralibus falcato-recurvis, terminali 2-partito segmentis divaricatis falcatis obtusis lobis lateralibus æquilongis et paullo latioribus.

HAB. Malayan Peninsula; Perak, *Scortechini*; Malacca, *Maingay*.

Caules $\frac{1}{4}$–$\frac{1}{2}$-pollicares, basi radicantes. *Folia* undique inserta, 3–5-pollicaria, $\frac{1}{3}$–$\frac{2}{3}$ poll. lata, coriacea, basi et apice angustata, apicibus sæpe recurvis, vaginis perbrevibus. *Scapi* decurvi, $\frac{1}{2}$–1 poll. longi; bracteis paucis ovatis patulis. *Flores* $\frac{1}{2}$ poll. diam., sepalis petalisque patentibus 3-nerviis pallide aurantiacis rubro-punctatis. *Labellum* sepalis brevius, quasi 4 partitum, pallidum, sacco v. calcare lobis æquilongum obtuso *Columna* labello æquilonga, basi attenuata, apice utrinque calcarata et dorso subulata incurva. *Pollinia* minuta, globosa, in apicem truncatam glandulæ majusculæ triangularis sessilia.—J. D. H.

Fig. 1. Portion of scape. 2. Flower. 3. Dorsal sepal. 4. Lip. 5. Pollinia. *Greatly enlarged.*



M. S. del. et lith.

Sarcochilus recurvus, Hk. f.

Plate 2122.

SARCOCHILUS RECURVUS, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

S. (**Fornicaria**) **recurvus**, *Hook. f. Fl. Brit. Ind.* vi. 39; caule brevi radicante, foliis lineari-oblongis loriformibusve planiusculis apice rotundatis dorso costatis, scapis nudis erectis foliis multo longioribus, spica (v. racemo) brevi cylindracea, bracteis dense imbricatis ovato-lanceolatis carnosulis recurvis.

Hab. Malayan Peninsula: Perak, on the Limbo Hills in the Larut Province, *King's Collector*.

Folia $1\frac{1}{2}$–2 poll. longa, $\frac{1}{3}$–$\frac{1}{2}$ poll. lata, basi vix angustata, vaginis $\frac{1}{6}$ poll. longis striatis. *Scapi* axillares v. vaginas perforantes, 3–5 poll. longi, strictiusculi, omnino nudi; spica $\frac{1}{2}$–$\frac{2}{3}$ poll. longa, $\frac{1}{3}$ diam. lata; bracteæ $\frac{1}{6}$ poll. longæ.

Though flowerless, I have not hesitated to name and describe this species, which is so marked in character that it cannot be confounded with any hitherto described.

In a note attached to the specimen the flowers are described as light red mottled with light brown.—J. D. H.

M S del, et lith.

Sarcochilus trichoglottis, Hk.f.

Plate 2123.

SARCOCHILUS TRICHOGLOTTIS, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

S. (Fornicaria) trichoglottis, *Hook f. Fl. Brit. Ind.* vi. 39; caule elongato folioso, foliis distichis lineari-oblongis emarginatis coriaceis dorso carinatis, scapis axillaribus robustis medio 1-bracteatis, racemo brevi paucifloro, bracteis paucis imbricatis, sepalis lineari-oblongis obtusis, petalis angustioribus lineari-lanceolatis, labello sessili saccato orbiculari v. subspathulato apiculato ciliato et parce hirsuto.

Hab. Malayan Peninsula; Perak, *Scortechini*; Singapore, *Ridley*.

Caules 3–5-pollicares, inferne radicantes, vaginis foliorum $\frac{1}{4}$–$\frac{1}{3}$ poll. longis striatis obtecti. *Folia* 2–$2\frac{1}{2}$ poll. longa, $\frac{1}{3}$–$\frac{1}{2}$ poll. lata, coriacea, planiuscula, enervia, basi augustata. *Scapi* axillis inferioribus erecti, horizontales, foliis breviores; basi breviter vaginati; vaginis tubulosis; bractea ad medium triangulari-ovata; racemi bracteis $\frac{1}{6}$ poll. longis ovatis subacutis carnosulis undique insertis imbricatis. *Flores* pallide flavi. *Sepala lateralia* $\frac{1}{3}$ poll. longa, basi columnæ apodæ inserta. *Labelli* saccus late conicus, obtusus, lobi laterales vix conspicui terminalis apiculiformis.

Allied to the Burman *S. Hystrix*, Reichb. f., differing in the much shorter and broader leaves, and in the form of the lip, which is not glandular. I have seen no flowers, and have described them from drawings by Father Scortechini and Mr. Ridley.—J. D. H.

Fig. 1. Flower. 2. Sepal. 3. Petal. 4 Column and lip. 5. Lip. *All enlarged.*

M. Foster et lith.

Sarcochilus filiformis, Hk. f.

Plate 2124.

SARCOCHILUS FILIFORMIS, *Hook. f.*

Orchideæ. Subtribe Vandeæ.

S. (**Fornicaria**) **filiformis**, *Hook. f. Fl. Brit. Ind.* vi. 40; caule elongato terete vaginato, foliis elongatis filiformibus obtusiusculis, scapis foliis multo brevioribus nudis apice paucifloris, bracteis paucis minutis ovatis imbricatis, floribus albis, sepalis petalisque subsimilibus oblongo-lanceolatis obtusis, labello basi constricto lateribus involutis dein 3-lobo, lobis lateralibris alæformibus rotundatis terminali in saccum oblongum puberulum ore parvo producto.

Hab. Malayan Peninsula; Perak, on trees, *King's Collector.*

Caulis 3-pollicaris, vaginis inclusis ad $\frac{1}{4}$ poll. diam., inferne radicans; vaginæ $\frac{1}{3}$ poll. longæ, tubulosæ, oblique truncatæ, costatæ. *Folia* 8–10 poll. longa, $\frac{1}{8}$ poll. diam., teretia, lævia, erecto-patentia. *Scapi* 2–3 poll. longi, basin versus caulis enati, vaginas perforantes, horizontales, subflexuosi; racemus $\frac{1}{4}$–$\frac{1}{3}$ poll. longus, pauciflorus; bracteæ 3 6, $\frac{1}{12}$ poll. longæ, obtusæ, carnosulæ; flores albi, pedicello unacum ovario $\frac{1}{3}$ poll. longo. *Sepala* $\frac{1}{2}$ poll. longa, petalaque 7-nervia. *Labellum* parvum, basi quasi in unguem brevem (columnæ pedem ?) constricta. *Columna* brevis.

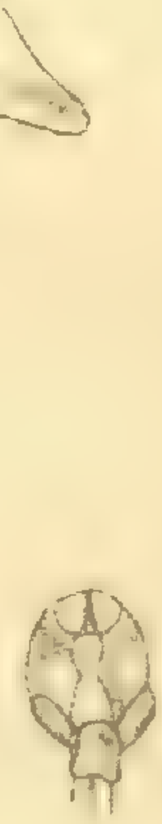
I have seen but one specimen of this singular species with a solitary flower available for analysis, and am not sure that the structure of the base of the lip is accurately described above, or represented in the plate, its texture being exceedingly delicate. What appears in the plate as a claw to the lip, I regard as the prolonged foot of the column, to which the lateral sepals are adnate at their bases.—J. D. H.

Fig. 1. Flower. 2. Lip. *Both greatly enlarged.*

A

1.

3



4

5

B

M. Smeeton lith.

A. Sarcochilus merguensis, Hk f
B ——————— pugionifolia, Hk. f.

Plate 2125.

A. SARCOCHILUS MERGUENSIS, *Hook. f.*

B. SARCOCHILUS PUGIONIFOLIUS, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

A.—**S.** (**Fornicaria**) **merguensis,** *Hook. f. Fl. Brit. Ind.* vi. 40; pusillus, caule brevi foliorum vaginis distiche imbricatis tecto, foliis lineari-oblongis obtusis, scapis axillaribus gracilibus, floribus in rachim brevem compressam bracteis arcte imbricatis subdistichis pectinatim dispositis, capsulis anguste fusiformibus scapos æquantibus v. iis longioribus teretibus stylo brevi et stigmate capitellato terminatis.

Hab. Tenasserim, at Mergui, *Griffith* (*in Herb. Lindl.*).

Caules $\frac{1}{2}$–$\frac{3}{4}$ unc., suberecti, compressi; vaginæ foliorum $\frac{1}{3}$–$\frac{1}{4}$ unc., truncatæ, striatæ. *Folia* 1–$1\frac{1}{2}$ unc. longa, subcoriacea. *Scapi* plures, filiformes, medio 1-bracteolati; bracteæ florales ovatæ, acutæ, suberectæ, $\frac{1}{12}$ poll. longæ. *Capsulæ* 1–$1\frac{1}{2}$ poll. longæ, $\frac{1}{6}$ poll. diam., utrinque attenuatæ, breviter pedicellatæ, striatæ, stylo $\frac{1}{12}$–$\frac{1}{10}$ poll. longo.

A curious little species, of which the specimens are very incomplete, and in fruit only.—J. D. H.

B.—**S. pugionifolius,** *Hook. f. Fl. Brit. Ind.* l. c. 196; caule perbrevi compresso, foliis elongato-subulatis v. pugioniformibus acuminatis crasse coriaceis punctatis supra canaliculatis apicibus setiformibus, scapis axillaribus foliis brevioribus, floribus in rachim brevem bracteis squarroso-imbricatis dispositis, sepalis ovato-oblongis obtusis latere inferiore gibbis petalisque oblongis obtusis stramineis, labello albo aurantiaco maculato basi columnæ inserto breviter unguiculato oblongo saccato truncato ore 3-lobo ciliato, intus bimaculato et carunculo parvo ciliato basin versus lobi medio instructo et basin versus disci setula ciliata acuto.

Hab. Ceylon; at Varuniya, in the North Central Province, *Trimen.*

Caulis vaginis distiche imbricatis brunneis tectus, radicans, apice paucifoliatus. *Folia* $1\frac{1}{2}$–2 poll. longa, supra profunde canaliculata, saturate viridia. *Scapi* foliis paullo breviores, bracteæ $\frac{1}{12}$ poll. longæ. *Flores* $\frac{1}{2}$ poll. diam.

The plate is from a drawing made in the Peradenya Botanical Garden by W. de Alwis, kindly communicated by Dr. Trimen.

Fig. 1. Front view of flower. 2. Column and lip. 3. Lip, laid open. 4. Column. 5. Pollinia. *All enlarged.*

VOL. II.—PART II.] [MARCH.

HOOKER'S

ICONES PLANTARUM;

OR,

FIGURES, WITH DESCRIPTIVE CHARACTERS AND REMARKS,

OF NEW AND RARE PLANTS,

SELECTED FROM THE

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FOURTH SERIES.

EDITED FOR THE BENTHAM TRUSTEES BY

DANIEL OLIVER, F.R.S., F.L.S.

EMERITUS PROFESSOR OF BOTANY IN UNIVERSITY COLLEGE, LONDON: LATE KEEPER OF THE HERBARIUM AND LIBRARY, ROYAL BOTANIC GARDENS, KEW.

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VOL. II.

OR VOL. XXII. OF THE ENTIRE WORK.

DULAU & CO.

37 SOHO SQUARE, LONDON.

1893.

SPOTTISWOODE AND CO. PRINTERS, NEW-STREET SQUARE, LONDON.

Price Four Shillings.

Sarcochilus notabilis, Hk. f

Plate 2126.

SARCOCHILUS NOTABILIS, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

S. notabilis, *Hook. f. Fl. Brit. Ind.* vi. 42; caule brevi, foliis subsessilibus oblongis v. elliptico-oblongis, scapis gracillimis, floribus in rachim e bracteis arcte distiche imbricatis compressam pectinatim dispositis gracile pedicellatis, sepalis petalisque consimilibus e basi anguste lanceolata 3-nervi in caudas filiformes productis, labello basi columnæ sessili profunde saccato ore dilatato apice in caudam filiformem producto.

Hab. Singapore, *Ridley.*

Caulis crassus, $\frac{1}{2}$ poll. longus, foliosus. *Folia* 2–$3\frac{1}{2}$ poll. longa, $\frac{2}{3}$–$1\frac{1}{4}$ lata, distiche patentia, obtusa v. apice 2-dentata, coriacea, supra cupreo-brunnea, juniora viridia marginibus cupreis, subtus pallidiora. *Scapi* axillares, solitarii v. fasciculati, brunnei, medio vagina parva instructi; racemus $\frac{3}{4}$–2 poll. longus, bracteæ $\frac{1}{8}$–$\frac{1}{6}$ poll. longæ. *Flores* erecti, pedicello cum ovario $\frac{1}{2}$ poll. longo; sepala et petala fere pollicaria, aurantiaca, basin versus sanguineo tincta; labellum pallide fulvum, rubro-aurantiaco marmoratum, apice caudiformi albo. *Columna* brevissima, pallide flava; rostello 0; anthera ovata, depressa; pollinia 2, clavata, recurva, stipiti quadrato brevi sessilia, glandula brevi obovata.

A very beautiful plant, of which I am here able to give a much fuller description than that in 'The Flora of British India,' which was drawn up from a single leaf and three flowering scapes joined at the base and obviously so produced. Mr. Ridley has, since the publication of that description and the preparation of this plate, sent me a beautiful coloured drawing of the plant with analyses, which differ from my description only in the solitary scapes, the raceme being young and only half an inch long, in the sac of the lip being deeper than is represented on this plate, and in its shorter filiform tip. —J. D. H.

Fig. 1. Flower. 2. Column and lip. 3. Lip. 4. Anther. 5. Pollinia. *All enlarged.*

M.S. del et lith.

Aerides longicornu, Hk.f.

Plate 2127.

ÆRIDES LONGICORNU, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

Æ. longicornu, *Hook. f. Fl. Brit. Ind.* vi. 44; foliis elongatis teretibus gracilibus, pedunculo gracili paucifloro, pedicellis elongatis, bracteis minutis, sepalis petalisque lineari-oblongis obtusis marginibus crispatis, labelli lobis lateralibus 2-partitis segmentis elongato-subulatis intermedio obcordato, calcare corniforme sepalis duplo longiore. Mesoclastes uniflorus, *Lindl. in Wall. Cat. No.* 1993; *Gen. et Sp. Orchid.* 45. Luisia uniflora, *Blume, Rumph.* iv. 50; *Mus. Bot.* i. 64. *Lindl. Fol. Orchid.*, Luisia, 3.

Hab. Nepal, *Wallich*; Naga Hills, in Upper Assam, alt. 5,500 feet, *C. B. Clarke.*

Caules cæspitosi, penduli, flexuosi, laxifolii, diam. pennæ anserinæ. *Folia* 6–8-pollicaria, caulibus tenuiora, acuta. *Pedunculi* axillares, pollicares, pedicellis $\frac{1}{2}$–$\frac{3}{4}$-pollicaribus. *Flores* ad 2, albi, 1 poll. lati. *Sepala* et *petala* 5-nervia, latitudine varia; petala breviora, sæpissime latiora. *Labellum* sepalis æquilonga, loborum lateralium segmenta falcato-decurva, lobo intermedio membranaceo æquilonga; calcar incurvum, acutum. *Capsula* 2-pollicaris, anguste fusiformis, pedicello gracili.

In the absence of flowers, this interesting plant was very naturally placed in *Luisia* (from its terete leaves and long capsule) by Blume. Mr. Clarke's flowering specimen enabled me to refer it to its proper genus, where it consorts with two other terete-leaved species, viz. *Æ. vandarum*, Reichb. f., of the Eastern Himalaya and the Khasia Hills, and *Æ. cylindricum*, Lindl., of the Malabar Ghats. The side lobes of the lip, divided into two long subulate decurved segments, and the long spur at once distinguish *Æ. longicornu* from the others. The fact of the peduncle being two-flowered obliges me to discard Lindley's specific name.—J. D. H.

Fig. 1. Flower. 2. Column. *Both enlarged.*

M S. del et lith.

Renanthera angustifolia, Hk f.

Plate 2128.

RENANTHERA ANGUSTIFOLIA, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

R. angustifolia, *Hook. f. Fl. Brit. Ind.* vi. 49; caule elongato flexuoso, foliis recurvis linearibus inferne angustatis apice inæqualiter bilobis, panicula elongata laxiflora, floribus $1\frac{1}{2}$ poll. diam., sepalis lanceolatis lateralibus unguiculatis, petalis angustioribus, labelli minuti lobis lateralibus acutis intermedio calcare infundibulari multo breviore recurvo, columnæ apice hispidulo.

Hab. Malay Peninsula; Perak, on Gunong Batu Pateh, *Wray.*

Caules crassitie pennæ anserinæ, striati. *Folia* 4–5 poll. longa, $\frac{1}{2}$–$\frac{3}{4}$ poll. lata. *Pedunculi* laterales, elongati, graciles, parce ramosi; bracteæ parvæ; pedicelli graciles, unacum ovario pollicares. *Sepala* 7-nervia, acuta, dorsali sessili, lateralibus basi rotundatis, abrupte breviter unguiculatis. *Petala* sepalis æquilonga, sed angustiora. *Labellum* sepalis multoties minus, sacculum conicum ore 3-lobo lobis lateribus 2-dentatis, intermedio linguæformi. *Columna* brevis, crassa, apice bidentata et annulo pilorum instructa; anthera ovoidea, truncata; pollinia oblonga, majuscula, integra, stipite brevi lata, glandula ovata.

Near *R. elongata*, Lindl., of the Malayan Peninsula and Islands, but the flowers are very much smaller, and the spur very small.—J. D. H.

Fig. 1. Flower. 2. Front; and 3, side view of column and lip. 4. Anther. 5. Pollinia. *All enlarged.*

M.S.del.et lith.

A. Saccolabium perpusillum, Hk.f.
B. ——————— penangianum, Hk.f.

Caules flexuosi, crassitie pennæ anatinæ, internodiis $\frac{1}{2}$-pollicaribus. *Folia* $2\frac{1}{2}$–3 poll. longa, $\frac{1}{2}$ poll. lata, crassa, stricta v. recurva. *Racemi* 1–$1\frac{1}{2}$ poll. longi, demum recurvi; bracteæ subulatæ; pedicelli brevissimi; flores $\frac{1}{6}$ poll. longi, albi, sepalis aureo marginatis, labello supero. *Sepala* et *petala* 1-nervia. *Labelli* lobi brevissimi, obtusi, vix ultra orem calcaris magni producti; calcar siccitate angulatum, geniculatim incurvum, callo magno infra lobum medium labelli instructum. *Columna* brevis, lateribus rotundatis; anthera hemispherica, rostrata; pollinia parva, apice stipitis elongati spathulati sessilia, glandula minuta. *Capsulæ* $\frac{1}{4}$ poll. longæ, deflexæ, ellipsoideæ.

Very distinct from any species known to me.—J. D. H.

B. Fig. 1. Flower. 2. Petal. 3. Column and spur. 4. The same with the spur laid open. 5. Anther-case. 6. Pollinia. *All enlarged.*

M.S. del. et lith.

Saccolabium Helferi, Hk.f.

Plate 2130.

SACCOLABIUM HELFERI, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

S. Helferi, *Hook. f. Fl. Brit. Ind.* vi. 57 ; caulibus brevibus radicantibus, foliis loriformibus apice angustatis obtuse 2-lobis, paniculis gracilibus pedunculatis foliis brevioribus laxe ramosis, ramis curvis multifloris, floribus parvulis, sepalis orbiculari-ovatis obtusis, petalis minoribus oblongis obtusis, labelli lobis lateralibus dentiformibus terminali orbiculari-reniforme integro, calcare sacciformi sepalis paullo longiore ore amplo.

Hab. Tenasserim ; at Moulmein and the Mergui Archipelago, *Helfer, Griffith, Parish.*

Caules 1–3-pollicares, crassitie pennæ anatinæ, vaginis brevibus striatis foliorum tecti. *Folia* $2\frac{1}{2}$–$3\frac{1}{2}$ poll. longa, $\frac{1}{4}$ $\frac{1}{2}$ poll. lata, rigida. *Paniculæ* rami sæpius curvi ; bracteæ minutæ, persistentes, patulæ ; flores subsessiles, $\frac{1}{10}$ poll. diam., vix puberuli. *Petala* et *sepala* 1-nervia. *Labelli* lamina calcare brevior ; lobi laterales erecti, basi connati. *Columna* brevissima, ecornuta ; anthera subdidyma, truncata ; pollinia minuta, subglobosa, apice stipitis magni obovati sessilia, glandula . . . ?

I am doubtful as to the real nature of what I have described as the minute lateral lobes of the lip ; which, as represented at fig. 2, sometimes appeared as if connate into a callus, representing the callus within the spur of other species.—J. D. H.

Fig. 1. Side ; and 2, front view of flower. 3. Lip and column. 4. Longitudinal section of lip. 5. Anther-case. 6. Pollinia. *All enlarged.*

M.S del et lith

Saccolabium flavum, Hk.f.

Plate 2131.

SACCOLABIUM FLAVUM. *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

S. flavum, *Hook. f. Fl. Brit. Ind.* vi. 58; caule brevi robusto, foliis approximatis loriformibus apice late inæqualiter bifidis lobis acutis sinuque acutis, vaginis brevibus, racemo gracili gracile pedunculato laxifloro, bracteis minutis, pedicellis gracilibus, floribus parvulis, sepalis oblongis, labelli lobis lateralibus calcar magnum infundibulare marginantibus subquadratis erosis, terminali obsoleto, columna brevi crassa.

Hab. Tenasserim; at Moulmein, *Parish.*

Caulis 6-pollicaris, crassitie pennæ olorinæ. *Folia* disticha, 4–5 poll. longa, $\frac{3}{4}$ poll. lata, patula, viridia, nervis saturatioribus striata, lobis terminalibus $\frac{1}{3}$–$\frac{2}{3}$ poll. longis, cuspide interdum interposito; vaginis $\frac{1}{4}$–$\frac{1}{2}$ poll. longis, sulcatis. *Racemus* supra folia ortus, $3\frac{1}{2}$-pollicaris, decurvus; pedunculo $1\frac{1}{2}$-pollicari 2-vaginato, pedicellis unacum ovario $\frac{1}{3}$ poll. longis; flores $\frac{1}{4}$ poll. diam., pallide flavi. *Sepala* 1-nervia, dorsale fornicatum; petala subspathulata, 1-nervia *Labellum* unacum calcare sepalis duplo longius, ore lato, inter lobos laterales truncatum, intus nudum. *Columna* latior quam longa, rostello magno ut videtur carnoso; anthera acuminata; pollinia 8, per paria stipitellata, stipitellis basi in unum infra apicem stipitis gracillimi elongati flexuosi insertum connatis; glandula minuta.

The plate here given is the reproduction of a coloured drawing by the Rev. C. Parish. It resembles in many respects *Sarcanthus Parishii*, Hook. (Bot. Mag. t. 5217), in habit, in the lorate bifid leaves, yellow flowers, spur, and especially the curious pollen; but in that plant the leaf-lobes are rounded, the flowers are larger, the spur shorter, there is a distinct midlobe to the lip, the column is longer and narrower, and the spur is septate below the middle, and has a large dorsal callus, thus referring it to the genus *Sarcanthus*. Were it not that Mr. Parish notes that 'there is no apparent septum in the spur,' I should have regarded these two plants as congeneric. The singular structure of the pollinia is repeated with modifications in *Saccolabium obtusifolium* and *acuminatum* (Plates 2134, 2135), but it is carried (according to Parish's drawing), as it were, further in *S. flavum*, for each pollen-mass is broken up into a pair, each pair has a short stipes, and these unite into a common one that is inserted in the very long slender flat flexuous main stipes. I need scarcely add that I regard the genus *Sarcanthus* as separated from *Saccolabium* by a purely artificial character; and that a reclassification of the species of both, together with those of *Cleisostoma*, is to be looked for when better materials are available.—J. D. H.

Fig. 1. Flower. 2. Column and upper portion of lip. 3. Pollinia. *All enlarged.* (From a drawing by the Rev. C. Parish.)

M.S. del et lith.

Saccolabium rostellatum, Hk.f.

Plate 2132.

SACCOLABIUM ROSTELLATUM, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

S. rostellatum, *Hook. f. Fl. Brit. Ind.* vi. 59; caule perbrevi, foliis loriformibus planis striatis apice inæqualiter bifidis sinu acuto, racemo foliis multo breviore laxifloro, bracteis floribusque minutis, sepalis late oblongis obtusis, petalis paullo minoribus, labelli lobis lateralibus calcar marginantibus brevibus latis, terminali parvo ovato incurvo obtuso, calcare sepalis duplo longiore superne infundibulari, inferne in cornu producto.

Hab. Sikkim Himalaya; at Darjeeling, alt. 7,000 feet, *Gamble* (*in Herb. Calcutt.*).

Caulis vix pollicaris, radicibus confertis elongatis planis tortuosis. *Folia* 4–7 poll. longa, $\frac{1}{2}$–$\frac{3}{4}$ poll. lata, fere recta, costata; vaginis $\frac{1}{4}$–$\frac{1}{3}$ poll. longis. *Racemus* cum pedunculo 8–10-floro 2-uncialis, gracilis; flores $\frac{1}{3}$ poll. longi (calcare incluso). *Sepala* et *petala* 3–5-nervia. *Columna* parva, rostello erecto prominulo; pollinia 2-loba, majuscula, apice stipitis angustioris deorsum sensim attenuati sessilia; glandula minuta.

The specimens of this very distinct species were hardly sufficient for a good description.—J. D. H.

Fig. 1. Flower, *nat. size*. 2. Flower. 3. Dorsal sepal, spur, and column. 4. Petal. 5. Pollinia. *All enlarged*.

M.S del et lith

Saccolabium minimiflorum, Hk f.

Plate 2133.

SACCOLABIUM MINIMIFLORUM, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

S. minimiflorum, *Hook. f. Fl. Brit. Ind.* vi. 59; caule brevissimo, foliis elliptico-ovatis -lanceolatisve utrinque acutis, racemis elongatis gracillimis foliis multoties longioribus multifloris, bracteis subulatis flores minutos fere æquantibus, sepalis petalisque oblongis obtusis, labello calcariforme sepalis longiore, basi in saccum obtusum (calcare) instructum antice in cornu breve ascendentem producto.

Hab. Perak, *Father Scortechini.*

Caulis $\frac{1}{4}$-pollicaris, basi radicibus fasciculatis copiose instructus, paucifoliatus. *Folia* $1\frac{1}{2}$–2 poll. longa, patula, tenuiter coriacea, plana, costa tenui. *Scapi* ad basin fere bracteis persistentibus instructi, unacum racemo 2–6-pollicares; bracteæ patulæ; flores ad $\frac{1}{20}$ poll. lati. *Sepala* et *petala* (minora) 1-nervia. *Labelli* lobi laterales 0; terminale cornu a latere compressum simulans; ore majusculo intus callo globoso instructo. *Columna* mediocris, basi calcare elongata armata; anthera longe rostrata.

A very curious species, quite unlike any other known to me, probably pendulous in habit. The specimens are very indifferent, but fortunately accompanied by a sketch with rude analysis and a description by its discoverer. The latter and an examination of the few available flowers enabled me to draw up the above description. Father Scortechini describes in the flower 'a something membranous, whitish, which I cannot make out whether it is a rostellum or a stipes;' and this I assume to be the spur-like body which is seen in fig. 2 projecting over the mouth of the lip, and as to the nature of which I can offer no opinion. Probably in fresh specimens it may be of a very different form.—J. D. H.

Fig. 1. Side view; and 2, front view of flower. 3. Lip. *All greatly enlarged.*

M.S. del. et lith

Saccolabium obtusifolium, Hk.f.

Plate 2134.

SACCOLABIUM OBTUSIFOLIUM, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

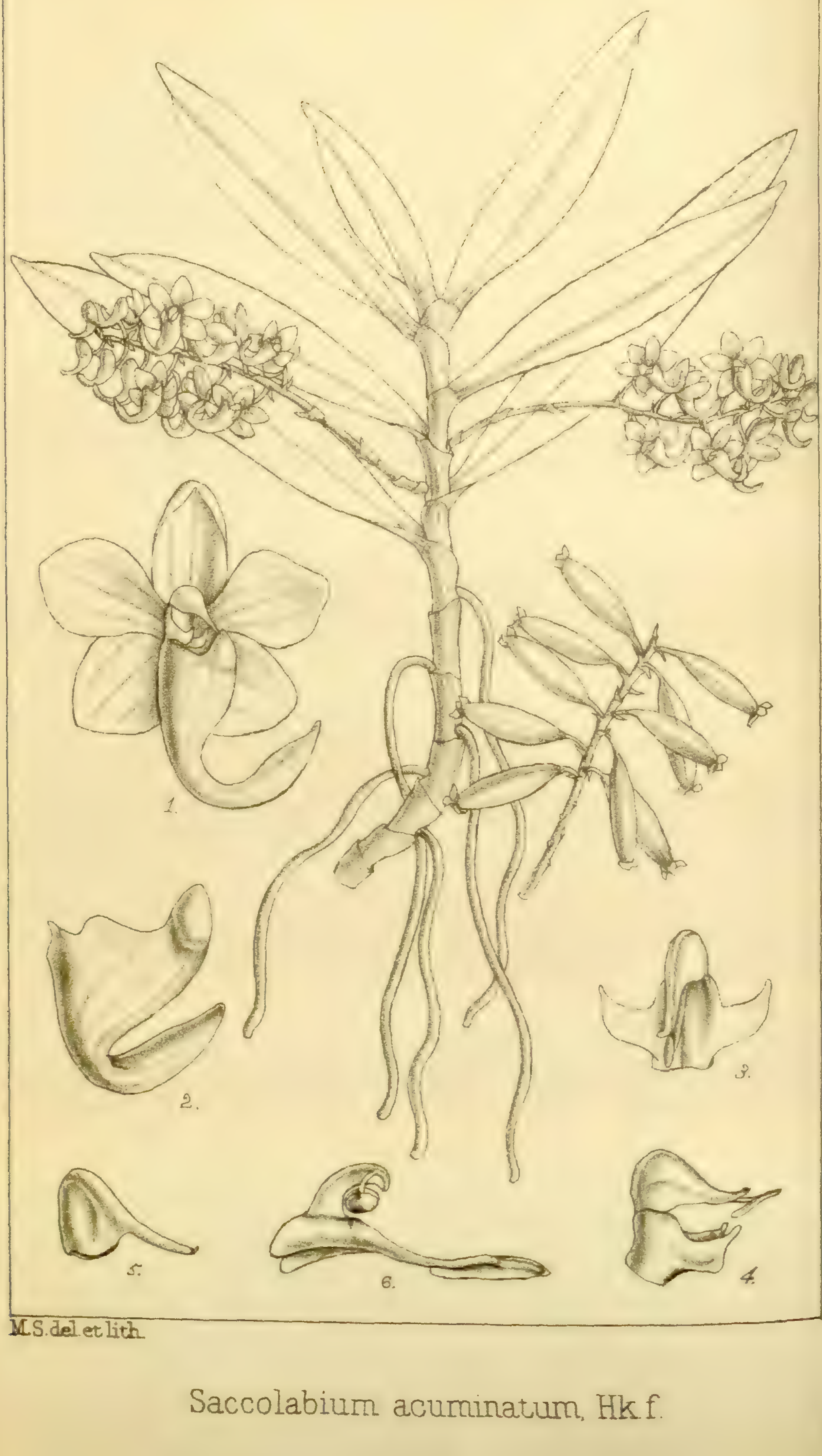
S. obtusifolium, *Hook. f. Fl. Brit. Ind.* vi. 65; caule brevi robusto, foliis late loratis apice profunde bifidis lobis rotundatis, racemo elongato multifloro, bracteis ovatis acutis reflexis, sepalis petalisque oblongis obtusis concavis, labello cymbiformi v. infundibulari in calcar incurvum apice clavatum producto, lobis lateralibus 0, terminali parvo reniforme basi callo instructo. Uncifera obtusifolia, *Lindl. in Journ. Linn. Soc.* iii. 40.

Hab. Sikkim Himalaya, alt. 5,000 feet, *Clarke*; Bhotan, *Col. Lister*; Khasia Hills, alt. 4,000 feet, *J. D. H.* and *T. Thomson.*

Caules 2–4-pollicares, crassitie pennæ anserinæ, radicibus elongatis. *Folia* 4–6-pollicaria, $\frac{3}{4}$–1 poll. lata, plana, crasse coriacea; vaginæ $\frac{1}{4}$–$\frac{1}{3}$ poll. longæ. *Scapi* infra folia orti, unacum racemis 4–5-pollicares, bracteæ majusculæ, persistentes; pedicellis unacum ovariis $\frac{1}{4}$ poll. longis; flores $\frac{1}{2}$ poll. diam., virescentes, demum stramiuei. *Sepala* et *petala* 3-nervia. *Labellum* unacum calcare sepalis subduplo longius. *Columna* brevis, rostello parvulo; anthera tumida, longe rostrata; pollinia 2. parva, infra apicem late cordatam v. bialatam stipitis magni basi angustati stipitellata, glandula elongato-lanceolata.

The singular pollinia of this and the following species induced Lindley to refer them to a genus apart, which he designated *Uncifera.* This he assuredly would not have done had he been aware of the nature of the pollinia of *S. flavum* (Plate 2131), of *Sarcanthus Parishii*, and of probably other allied plants. It is indeed a singular fact that in the tribe *Sarcantheæ* the pollen and its appendages, whilst offering a maximum amount of variety in structure, seem to be of no avail for the purpose of classification.—J. D. H.

Fig. 1. Side view; and 2, front view of flower. 3. Apex of lip, with midlobe and callus. 4. Anther. 5 and 6. Pollinia. *All enlarged.*



M.S. del. et lith.

Saccolabium acuminatum, Hk.f.

Plate 2135.

SACCOLABIUM ACUMINATUM, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

S. acuminatum, *Hook. f. Fl. Brit. Ind.* vi. 65; foliis linear- v. oblongo-lanceolatis oblique acuminatis, racemis foliis brevioribus, bracteis minutis, sepalis lateralibus orbiculari-ovatis, petalis obovatis, labello infundibulari in calcar incurvum producto, lobis lateralibus obscuris, terminali brevi ovoideo carnoso. Uncifera acuminata, *Lindl. in Journ. Linn. Soc.* iii. 40.

Hab. Sikkim Himalaya, alt. 6,000–7,000 feet, *Gamble*; Khasia Hills common, *Griffith*, etc.

Caules quam in *S. obtusifolio* graciliores; sed folia breviora, 2–3 poll. longa, utrinque angustata, non biloba sed uno latere ultra alterum producto et acuto, pedunculi et racemi breviores, sepala latiora et petala dissimilia.

I find little difference between the pollinia and its appendages in this and in *S. obtusifolium*. In both, the lip varies a good deal in form, and in the length and curvature of the spur.—J. D. H.

Fig. 1. Flower. 2. Lip. 3. Front view of column and anther with the rostellar arms spread out. 4. Side view of the same. 5. Anther. 6. Pollinia. *All enlarged.*

SARCANTHUS APPENDICULATUS, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

S. appendiculatus, *Hook. f. Fl. Brit. Ind.* vi. 67 ; caulibus elongatis, foliis elongatis cylindraceis obtusis acutisve, racemis brevibus pauciflоris longe pedunculatis, sepalis oblongo-lanceolatis acutis, petalis consimilibus sed minoribus, labello infundibulari a latere compresso in calcar subcylindricum obtusum lente recurvum producto, lobis lateralibus triangularibus, terminali parvo oblongo concavo, columna gracili basi antice pubescente. S. teretifolius, *Reichb. f. in Trans. Linn. Soc.* xxx. 136 (non *Lindl.*). Ærides appendiculatum, *Wall. Cat.* n. 7315. *Lindl. Gen. et Sp. Orchid.* 242.

Hab. Tavoy, *Wallich*; Tenasserim, *Griffith, Parish.*

Caulis pedalis et ultra, crassitie pennæ anatinæ v. anserinæ, maculatus, radices validos emittens. *Folia* 3–5 poll. longa, crassitie pennæ anatinæ, curva. *Scapus* foliis longior, flexuosus, vaginis paucis abbreviatis instructus ; racemi 1–2-pollicares, 6–8-flori ; bracteæ minutæ ; flores ½ poll. diam. *Petala* et *sepala* reflexa, flavo-viridia, 3-nervia et subreticulatim venulosa. *Labellum* roseum, calcare inferne septato, callo infra columnam gracilem magno lobato, callo ad basin labelli lobi terminalis tumido rugoso. *Columna* incurva; anthera brevis ; pollinia magna, stipite lato triangulari-ovato.

This, which Reichenbach referred to the Chinese *S. teretifolius*, differs conspicuously from that plant in the longer leaves, much longer peduncle, in the cylindric spur at the base of the funnel-shaped lip, and in the longer slender column. The plate is a reproduction of a drawing by Mr. Parish, in which the flowers are represented as very much larger than in his dried specimen, where they are hardly a quarter of an inch broad.—J. D. H.

Fig. 1. Flower. 2. Lip laid open, showing the dorsal and ventral calli of the lip, and the vertical septum of the spur. 3. The ventral callus. *All enlarged.*

M.S. del et lith.

Sarcanthus insectifer, Reichb.f.

Plate 2137.

SARCANTHUS INSECTIFER, *Reichb. f.*

Orchideæ. Subtribe Sarcantheæ.

S. insectifer, *Reichb. f. in Bot. Zeit.* 1857, 159; caule robusto flexuoso scandente, foliis amplexicaulibus oblongis obtuse 2-lobis, racemis breviter pedunculatis paucifloris, sepalis ovato-oblongis obtusis v. subacutis, petalis oblongis, labello late infundibulari ore annulo villoso cincto in calcar conicum attenuato, lobis lateralibus brevibus, terminali sepalis majore triangulari-ovato v. cordato sub apice attenuato carnoso. *Hook. f. Fl. Brit. Ind.* vi. 68.

Hab. Behar (Western Bengal), *J. D. H.*; Cachar, *Mann*; Chittagong (*ic. in Herb. Calcutt.*); Tenasserim, *Parish.*

Caules pedales et ultra, crassitie pennæ anatinæ, flexuosi, radices elongatas undique proferentes. *Folia* crebra, fere imbricata, distiche patentia, $1\frac{1}{2}$–2 poll. longa, rigide coriacea. *Racemi* subsessiles, foliis multoties breviores, 3–5-flores, pedunculo rachique crasso decurvo; bracteæ minutæ, deciduæ; flores $\frac{1}{2}$ poll. lati. *Sepala* et *petala* 3-nervia, flavo-viridia, rufo striata. *Labellum* albo-roseum v. purpureum, ore amplo, callo basi lobi terminalis crasso, infra columnam magno 2-fido; calcare septato. *Columna* brevissima, lata, rostelli ? brachiis elongatis incurvis; anthera hemispherica; pollinia sulcata, stipite brevi quadrato latiore quam longa, sessilia, glandula magna membranacea.

The plate here given is taken from a portrait of a fine mass of this species, attached to the bark of a billet of wood, which belongs to the Calcutta Herbarium, and is marked as having been procured at Chittagong. It represents a much larger state of the plant than that which I found in Behar, and of which the leaves were only about an inch long; the lip is larger than in any of the specimens I have examined, and in which I have not been able to determine the nature of the two hornlike processes projecting from the column represented in fig. 2, and which I assume are the two arms of the rostellum.

Fig. 1. Side view; and 2, front view of flower. 3. Lip, cut open, showing the septum. 4. Front and back views of anther. 5. Two views of pollinia. *All enlarged.*

M S. del. et lith.

Sarcanthus Scortechinii, Hk.f.

PLATE 2138.

SARCANTHUS SCORTECHINII, *Hook. f.*

ORCHIDEÆ. Subtribe SARCANTHEÆ.

S. Scortechinii, *Hook. f. Fl. Brit. Ind.* vi. 68; caule elongato robusto, foliis elliptico-lanceolatis apiculatis basi angustatis fere petiolatis crasse coriaceis, racemis erectis folia æquantibus breviter pedunculatis multifloris, rachi valida, bracteis ovario æquilongis, floribus parvis, sepalis petalisque oblongis, labello infundibulari basi in calcar conico-cylindraceum obtusum producto, lobis lateralibus dentiformibus v. obsoletis, intermedio parvo deltoideo erecto obtuso.

HAB. Malayan Peninsula; at Perak, *Father Scortechini*, *Wray*.

Caulis crassitie pennæ anserinæ. *Folia* 3–5 poll. longa, 1–1¼ poll. lata, crasse coriacea, subtus costata, costa excurrente apiculata. *Racemi* oppositifolii; flores ⅓ poll. lati. *Sepala* et *petala* 1-nervia, sordide purpurea, marginibus costaque purpureis. *Labellum* sepalis longius, ore amplo, callo dorsali crasso, antico puberulo, calcare infra medium septato. *Columna* brevis; anthera longe rostrata; pollinia biloba, apice stipitis anguste linearis sessilia, glandula minuta.

I have seen only fruiting specimens of this species, the flowers and analysis of which are from a drawing by Scortechini.—J. D. H.

Fig. 1. Flower. 2. Lip, laid open, showing the calli and position of the septum. 3, 4. Column. 5. Anther-case. 6. Pollinia. *All enlarged.*

M S del et lith.

Sarcanthus lorifolius, Parish.

Plate 2139.

SARCANTHUS LORIFOLIUS, *Parish.*

Orchideæ. Subtribe Sarcantheæ.

S. lorifolius, *Parish mss. in Hook. f. Fl. Brit. Ind.* vi. 69; caule brevi crasso paucifoliato, foliis elongatis linearibus recurvis crassis canaliculatis carinatis obtusis v. breviter 2-lobis, scapo elongato flexuoso parce ramoso, ramis spicas multifloras gerentibus, bracteis reflexis, floribus parvis, sepalis lateralibus late obovatis petalis oblongo-obovatis multo latioribus, labello in calcar crassum subincurvum sepalis longius apice rotundatum producto, lobis lateralibus subulatis, intermedio parvo ovato concavo.

Hab. Tenasserim; at Moulmein, *Parish.*

Caulis crassitie fere digiti minimi, 2–3-pollicaris. *Folia* 4–5-pollicaria, $\frac{1}{2}$–$\frac{3}{4}$ poll. lata; vagina brevi. *Pedunculus* 4-pollicaris; racemi 3–4-pollicares, decurvi, rachi valida; flores $\frac{1}{4}$ poll. lati. *Sepala* et *petala* flava, rubro irrorata. *Labellum* album, lamella longitudinali semiseptatum; callo infra columnam 2-lobo. *Columna* brevis, crassa; anthera late ovata; pollinia globosa didyma, altero cujusvis massæ multo minore, apice stipitis angusti sessilia, glandula ovata acuminata.

The accompanying plate is from an excellent drawing by the Rev. C. Parish made at Moulmein. The nearest ally of the species is *Cleisostoma spicatum*, Lindl., in which the side-lobes of the lip are rounded, and the spur suddenly inflated and lobulate at the base, besides wanting the septum which distinguishes *Sarcanthus* from *Cleisostoma*.—J. D. H.

Fig. 1. Flower. 2. Lip and column. 3. Section of lip, showing the dorsal callus and longitudinal septum. 4. Pollinia. *All enlarged.*

Cleisostoma andamanicum, Hk.f.

Plate 2140.

CLEISOSTOMA ANDAMANICUM, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

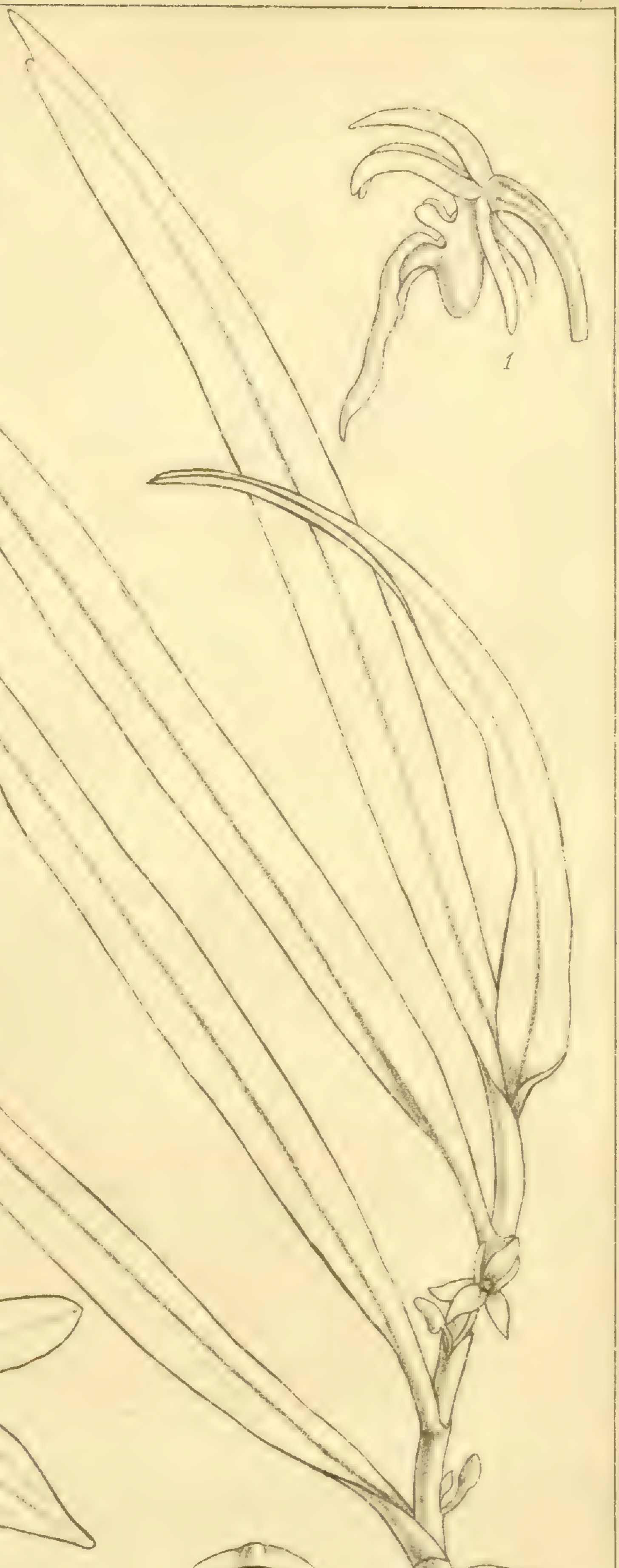
C. andamanicum, *Hook. f. Fl. Brit. Ind.* vi. 71; caule robusto elongato, foliis loratis 2-lobis crasse coriaceis, vaginis lævibus, pedunculis elongatis parce ramosis, ramis apice floriferis, bracteis minutis, sepalis oblongis v. obovato-oblongis obtusis, labelli lobis lateralibus truncatis intermedio brevi late cordato v. reniformi apice rotundato, calcare cylindraceo inferne subinflato sepalis dimidio longiore.

Hab. South Andaman Islands, *Kurz*.

Caulis crassitie pennæ anatinæ v. anserinæ, radices elongatas infra folia emittentes. *Folia* 4–6 poll. longa, $\frac{1}{2}$–$\frac{3}{4}$ poll. lata, patenti-recurva, costata, lobis rotundatis. *Pedunculi* rigidi, crassitie pennæ corvinæ, erecto-patentes, vaginis basi annularibus, ramis paucis divaricatis, racemis pollicaribus densifloris; flores $\frac{1}{4}$ poll. diam., pedicellis unacum ovario $\frac{1}{4}$-pollicaribus. *Sepala* et *petala* 3-nervia, flavo-viridia, fascia intramarginali purpurea. *Labellum* flavum, calcare rubro maculato, callo infra columnam ligulato retuso, infra lobum terminalem bicruri. *Columna* brevissima rostello magno porrecto; anthera acuminata v. subrostrata; pollinia parva, ellipsoidea, apice stipitis angusti sessilia, glandula parva.

Closely allied to the Malayan *C. latifolium* (of which it may be a slender state), but not nearly so stout, and with much larger flowers.—J. D. H.

Fig. 1. Side view; and 2, front view of flower. 3. Lip, laid open. 4. Column. 5. Pollinia. *All enlarged.*



M. S. del. et lith.

Cleisostoma bipunctatum, Hk. f.

Plate 2141.

CLEISOSTOMA BIPUNCTATUM, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

C. bipunctatum, *Hook. f. Fl. Brit. Ind.* vi. 73; caule gracili scandente, foliis anguste linearibus, apice oblique 2-dentatis, pedunculo brevissimo paucifloro, sepalis lateralibus oblongo-lanceolatis acutis, petalis sepalis æquilongis lineari-oblongis obtusis, labelli lobis lateralibus oblongis obtusis intermedio elongato ovato-lanceolato calcare hemispherico multoties longiore. Saccolabium bipunctatum, *Par. et Reichb. f. in Trans. Linn. Soc.* xxx. 245.

Hab. Tenasserim; Moulmein, *Parish*.

Caulis crassitie pennæ anatinæ, flexuosus. *Folia* 4–6 poll. longa, $\frac{1}{2}$–$\frac{2}{3}$ poll. lata, crassiuscula, costa valida. *Flores* cauli intra folia fere sessilia, bracteis minutis, ad $\frac{1}{4}$ poll. lati, flavi v. subpurpurei. *Sepala* 3-nervia, dorsali oblongo obtuso. *Petala* 1-nervia. *Labelli* lobum intermedium sepalis longius, pendulum, planum, marginibus recurvis, 3–5-nerve, album, basi callo tumido instructum; lateralia obtusa, erecta; squama infra columnam ligulæformis erecta, erosa. *Columna* brevissima; anthera depresso-hemispherica; pollinia subglobosa, bipartita, stipiti lineari affixa, glandula mediocri.

The materials for the accompanying plate are supplied by a drawing of Mr. Parish's and very imperfect specimens. The name refers to the two spots on the flower due to the lateral lobes of the lip being purple.—J. D. H.

Fig 1. Side view; and 2, front view of flower. 3. Lip, column, and anther. 4. Anther-case. 5. Pollinia. *All enlarged.*

M.S. del. et lith.

Cleisostoma brevipes, Hk. f.

Plate 2142.

CLEISOSTOMA BREVIPES, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

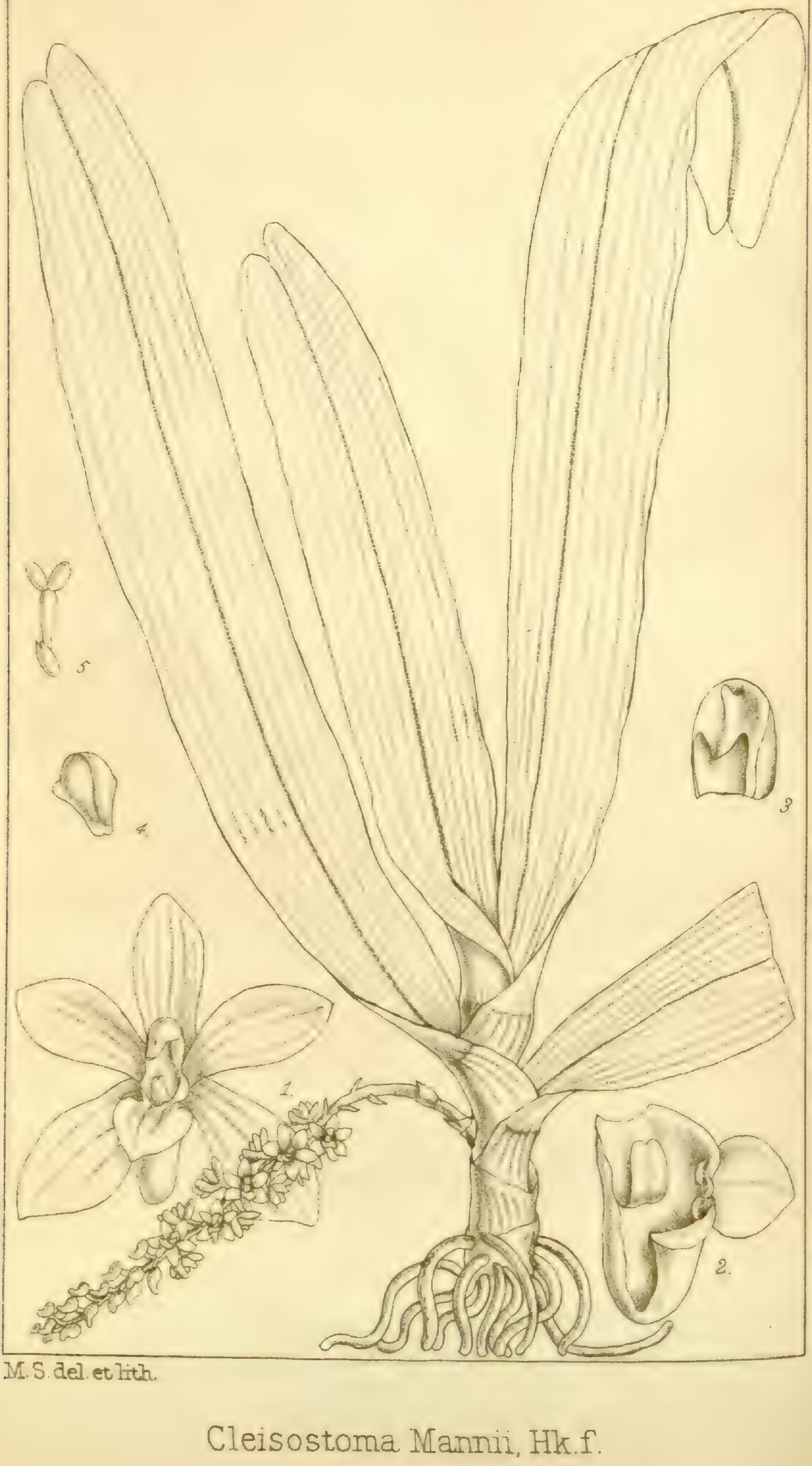
C. brevipes, *Hook. f. Fl. Brit. Ind.* vi. 73; caule crasso elongato basi radicante, foliis lineari-lanceolatis acutis rigide carnosis, spica brevi, rachi crassa, bracteis minutis ovatis, sepalis petalisque consimilibus ovato-oblongis obtusis, labelli lobis lateralibus brevibus falcatis acutis, terminali brevi hastato apice membranaceo disco incrassato, calcare saccato basi rotundato.

Hab. **Sikkim** Himalaya, alt. 5,000 feet, *Gamble* (*ic. in Herb. Calcutt.*); **Assam** (*cult.*).

Caules cæspitosi, 8–12-pollicares, crassitie pennæ anserinæ; internodiis $\frac{1}{2}$–$\frac{3}{4}$-pollicaribus, exsiccatis rugulosis. *Folia* reniformia, 3–4-pollicaria, erecto-patentia, plana, apicibus mucroniformibus, costa inconspicua. *Spica* unacum pedunculo 1–$1\frac{1}{2}$ poll. longa, crassitie pennæ anatinæ, vaginis infimis annularibus, superioribus sparsis ovatis acutis brunneis; ovariis $\frac{1}{4}$-pollicaribus, viridibus purpureo striatis; flores $\frac{1}{2}$–$\frac{2}{3}$ poll. diam. *Sepala* et *petala* aurantiaca, purpureo bivittata. *Labellum* pallide flavum, callis calcaris orem claudentibus. *Columna* brevis. *Pollinia* 2, subquadrata, apice stipitis angusti medio dilatati sessilia, sulcata; glandula magna, membranacea, bipartita, segmentis auriculæformibus. *Capsulæ* $1\frac{1}{2}$ poll. longæ, sessiles, fusiformes, teretes, striati.

The materials for the plate here given are, a drawing in the Calcutta Herbarium, a dried fruiting specimen from Mr. Gamble, and a living plant which flowered at Kew.

Fig. 1. Column, and section of lip. 2. Pollinia. *Both enlarged.*



M. S. del. et lith.

Cleisostoma Mannii, Hk.f.

Plate 2143.

CLEISOSTOMA MANNII, *Reichb. f.*

Orchideæ. Subtribe Sarcantheæ.

C. Mannii, *Reichb. f. in Flora*, 1872, 273; caule brevi crasso basi radicante, foliis loratis obtuse bilobis, pedunculo decurvo, racemo elongato multifloro, floribus parvis, sepalis petalisque obovatis obtusis, labelli lobis lateralibus truncatis obtuse angulatis, intermedio orbiculari-ovato, calcare sepalis breviore inflato v. cylindraceo. *Hook. f. Fl. Brit. Ind.* vi. 74; in *King, Ann. Bot. Gard. Calcutt.* t. lxxxvi. (*ined.*).

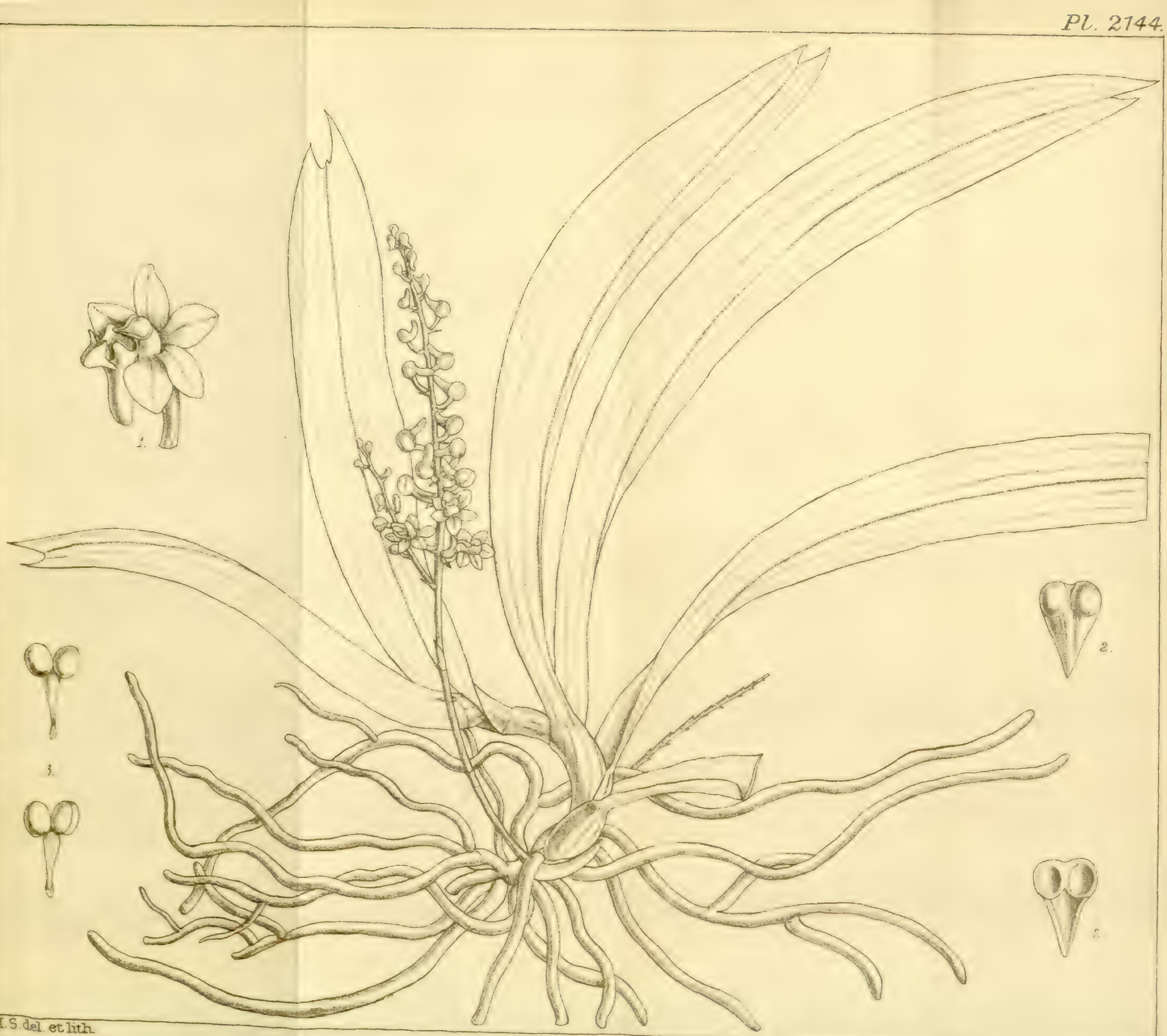
Hab. Assam, *Mann*; Sikkim? (*ic. in Hort. Bot. Calcutt.*).

Caules 1–2-pollicares, crassitie pennæ olorinæ; vaginæ breves, apertæ. *Folia* 6-pollicaria, $\frac{2}{3}$ poll. lata, plana, striata. *Pedunculus* unacum racemo 3-pollicaris, bracteis ovatis ovaria subæquantibus. *Flores* parvi, $\frac{1}{3}$ poll. lati. *Sepala* et *petala* pallide aurea, basi rosea. *Labelli* parvi lobus intermedius calcare brevior, lateralia obscura; squama infracolumnari linearis, erecta, apice 2-loba; callo infra lobum intermedium labelli 3-partito. *Columna* brevissima; anthera ovata, obtusa; pollinia parva, stipite lineari, glandula mediocri.

I am quite unable to distinguish satisfactorily Reichenbach's three species, *C. undulatum*, *Wendlandorum*, and *Mannii*, and doubtfully refer the plant here figured to the latter. It is copied from the type, a solitary specimen in the Kew Herbarium. According to Reichenbach's descriptions, *C. undulatum* has undulate leaves, oblong sepals, orbicular lateral lobes, a concealed obscurely 3-lobed midlobe of the lip, and a globose spur; *C. Wendlandorum* is a much larger plant, with (according to a drawing in *Herb. Calcutt.*) hairs on the lip (but which I have not found on any specimen that I have examined). I suspect that *C. Mannii* may be a small state of it.

The resemblance in the lip, its dorsal scale and ventral forked callus, to the same organ in *C. andamanicum* (Plate 2140) is obvious.—J. D. H.

Fig. 1. Flower. 2. Lip, laid open. 3. Column. 4. Anther. 5. Pollinia. *All enlarged.*



M.S. del. et lith.

Cleisostoma bicuspidatum, Hk.f.

CLEISOSTOMA BICUSPIDATUM, *Hook. f.*

Orchideæ. Subtribe Sarcantheæ.

C. bicuspidatum, *Hook. f. Fl. Brit. Ind.* vi. 75; and in *King, Ann. Bot. Gard. Calcutt.* t. lxxxvii.; caule brevi robusto basi radicante, foliis loriformibus profunde 2-lobis lobis acutis, racemo longe pedunculato simplici v. parce ramoso, bracteis parvis ovatis, sepalis late obovatis obtusis, petalis oblongo-obovatis, labelli lobis lateralibus parvis truncatis intermedio ovato acuto incurvo, calcare sepalis longiore cylindraceo obtuso.

Hab. Sikkim Himalaya, near Darjeeling, *Anderson* (*in Herb. Calcutt.*); Khasia Hills, alt. 2,000 feet, *Mann*; Tenasserim, *Parish* (*ic. in Herb. Calcutt.*).

Caulis 1–2-pollicaris, crassitie pennæ olorinæ, sæpius curvus, radicibus validis elongatis. *Folia* 3–7 poll. longa, ½–1 poll. lata, coriacea, curva, lobis terminalibus erectis v. incurvis, sinu acuto v. sæpius rotundato apiculo interposito, vaginis ½-pollicaribus. *Racemi* foliis breviores, multi- v. pauciflori; flores parvi v. majusculi, patentes v. reflexi. *Sepala* et *petala* flavo-viridia, fascia media rosea. *Labellum* album, roseo maculatum v. irroratum; calcare recto, ore annulo incrassato circumdato, callo infracolumnari 2-lobo. *Columna* brevissima, rostello elongato decurvo; anthera triangularis, subrostrata; pollinia majuscula, globosa, sulcata, infra apicem stipitis angusti superne dilatati inserta; glandula minuta.

In King's "Annals of the Calcutta Botanic Gardens" I have figured and described several varieties of this plant differing much *inter se* and from that here given, which is a copy of a drawing of a Darjeeling specimen in the Calcutta Herbarium, and has much smaller flowers than the others. The acute apical teeth of the leaves are like no other species of the genus known to me.—J. D. H.

Fig. 1. Flower. 2. Anther. 3. Pollinia. *All enlarged.*

M.S. del. et lith.

Podochilus unciferus. Hk.f.

Plate 2145.

PODOCHILUS UNCIFERUS, *Hook. f.*

Orchideæ. Subtribe Notylieæ.

P. unciferus, *Hook. f. Fl. Brit. Ind.* vi. 81 ; caulibus gracilibus erectis, foliis oblongis obtusis, pedunculis lateralibus numerosis gracilibus vaginatis foliis subæquilongis imo apice paucifloris, sepalis petalisque oblongis, mento elongato, labelli cuneato-oblanceolati v. -spathulati appendice basali uncinato recurvo ungue gracili.

Hab. Malayan Peninsula ; Perak, *Father Scortechini* ; Borneo ; Philippine Islands.

Caules fasciculati, 18–24 poll. longi, foliosi. *Folia* disticha, plana, semiamplexicaulia, $\frac{2}{3}$–$1\frac{1}{4}$ poll. longa, $\frac{1}{2}$–$\frac{2}{3}$ poll. lata, apice rotundata, sæpe denticulata et submembranacea, 1-nervia, striata, nitida ; vaginæ $\frac{1}{4}$–$\frac{1}{2}$ poll. longæ. *Pedunculi* erecto-patentes, bracteis acicularibus vaginati, racemo brevissimo 1–paucifloro terminati, rachi capillari ; bracteæ latæ. *Flores* $\frac{1}{5}$ poll. longi. *Sepala* acuta v. acuminata, 3-nervia, mento cylindraceo obtuso sepala æquantia. *Petala* late oblonga, 3-nervia. *Labellum* pedi brevi columnæ articulatum, apice dilatatum trilobum, ungue gracili, lobis lateralibus rotundatis, terminale triangulari acuto. *Columna* inermis ; anthera ovato-lanceolata ; pollinia anguste pyriformia.

The only Indian species with flat (not equitant or laterally compressed) broad leaves and many lateral peduncles.—J. D. H.

Fig. 1. Peduncle and raceme. 2. Flower. 3. Lip. 4. Anther-case. 5. Pollinia. *All enlarged.*

M.S del. et lith.

Podochilus khasianus, Hk.f.

Plate 2146.

PODOCHILUS KHASIANUS, *Hook. f.*

Orchideæ. Subtribe Notylieæ.

P. khasianus, *Hook. f. Fl. Brit. Ind.* vi. 81; caulibus gracilibus foliosis, foliis linearibus acutis, racemo brevissimo terminali paucifloro, floribus minutis, sepalis ovato-oblongis acutis, mento tumido, petalis ovato-oblongis obtusis, labello oblongo-lanceolato basi profunde cordato, appendice obsoleto? P. microphyllus, *Wall. Cat.* 7335 B; *Lindl. Gen. et Sp. Orchid.* 234 *in part*; in *Journ. Linn. Soc.* iii. 37.

Hab. Silhet, *Wallich*; the Khasia Hills, at Amwee *J.D.H.* and *T.T.*

Caules fasciculati, 4–6 poll. longi, suberecti, crassitie pennæ passerinæ, ad basin foliosi. *Folia* $\frac{1}{3}$–$\frac{1}{2}$ poll. longa, erecto-patentia, rigida, sæpe torta, vaginis $\frac{1}{6}$–$\frac{1}{4}$ poll. longis. *Pedunculus* foliis brevior, bracteæ rigidæ nervosæ. *Flores* $1\frac{1}{2}$ poll. longi. *Sepala* 1-nervia, lateralia subfalcata, basi in mentum breve conico-hemisphericum tumescentia. *Petala* breviora. *Labellum* breviter anguste unguiculatum, ungue basi columnæ inserto. *Columna* brevissima, alata, demum in brachia 2 postice concava basi fissa; anthera 2-cuspidata; pollinia brevia, paria calyptrata.

Very different from *P. microphyllus*, Lindl. in Wall. Cat. 7335 A, with which it has been confounded, in the stouter habit, narrower leaves, very short spike, in apparently wanting the large basal appendage of the lip, and especially in the bicuspidate anther. *P. microphyllus* is a native of Burma and the Malayan Peninsula and Islands.—J. D. H.

Fig. 1. Flower. 2. Lip. 3. Column after fission. 4. Anther. 5. Pollinia. *All greatly enlarged.*

M. S. del. et lith

Podochilus acicularis, Hk.f.

PLATE 2147.

PODOCHILUS ACICULARIS, *Hook. f.*

ORCHIDEÆ. Subtribe NOTYLIEÆ.

P. acicularis, *Hook. f. Fl. Brit. Ind.* vi. 82; caulibus filiformibus dense cæspitosis ramosis, foliis acicularibus, racemis terminalibus paucifloris brevissimis, floribus minutis, sepalis ovato-oblongis obtusis, mento tumido, petalis lineari-oblongis, labello late obovato v. oblongo, basi cordato et 2-cornuto.

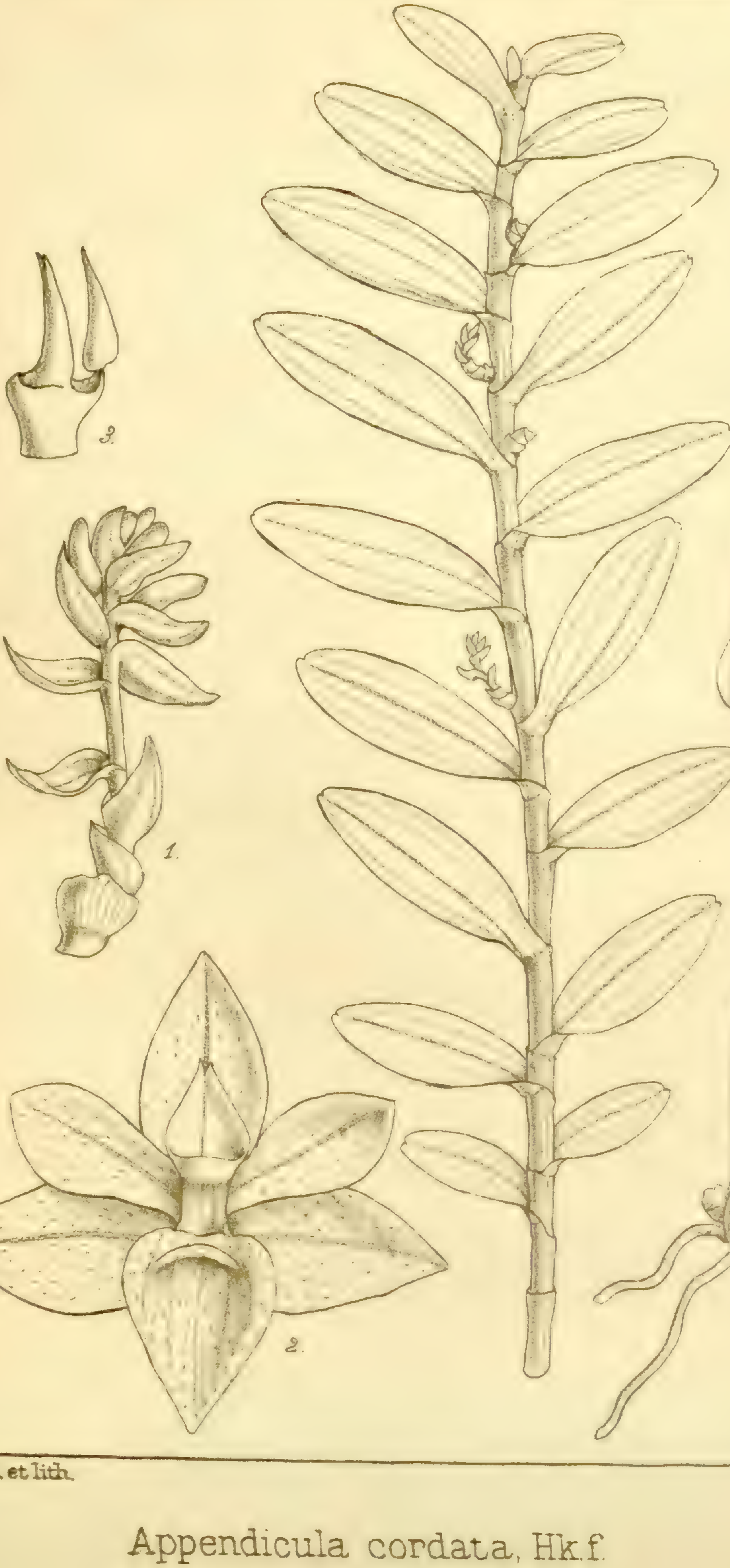
HAB. Malay Peninsula; Perak, *Father Scortechini*, etc.; Penang, *Wray*.

Caules 6–8-pollicares, diffusi, subflexuosi, ad basin foliosi. *Flores* $\frac{1}{12}$ poll. longi, ad apices ramorum subsessiles, albi, bracteis minimis. *Sepala* lateralia falcato-ovata, subacuta, 1-nervia, basi in mentum nunc obscurum rotundatum nunc globosum et 2-lobum tumescentia; dorsali minore. *Petala* obtusa, 1-nervia. *Labellum* sepalis brevius, 3-nerve, interdum fere rhombeo- rotundatum, ungue gracili, cornubus incurvis obtusis. *Columna* magna, demum bipartita; anthera ovato-cordata, demum bifida, lobis divaricatis acuminatis; pollinia per paria calyptrata, paribus glandulæ communi lineari affixa.

This species so closely resembles *P. distichus* (*Hexameria disticha*, Br.), *Benn. Pl. Jav. Rar.* t. 7, that I hesitated, and examined several flowers of each before I ventured to propose this.

The development of the column and pollinia in this genus requires a careful study. The difficulty in making out those structures in dried specimens is very great, but I think that the details which I have given on Plate 2147 are fairly accurate. The true nature of the calyptriform cap of the pollinia baffled me. Can it be derived from the dorsal face of the column?—J. D. H.

Fig. 1. Portion of stem and leaf. 2. Flower-bract and portion of rachis of spike. 3. Flower, spread open. 4. Anther-case in early, and 5. later, stage. 6. Two of the pollen-masses with their calyptriform sheath and gland. *All greatly enlarged.*



M.S. del. et lith.

Appendicula cordata, Hk.f.

Plate 2148.

APPENDICULA CORDATA, *Hook. f.*

Orchideæ. Subtribe Notyliеæ.

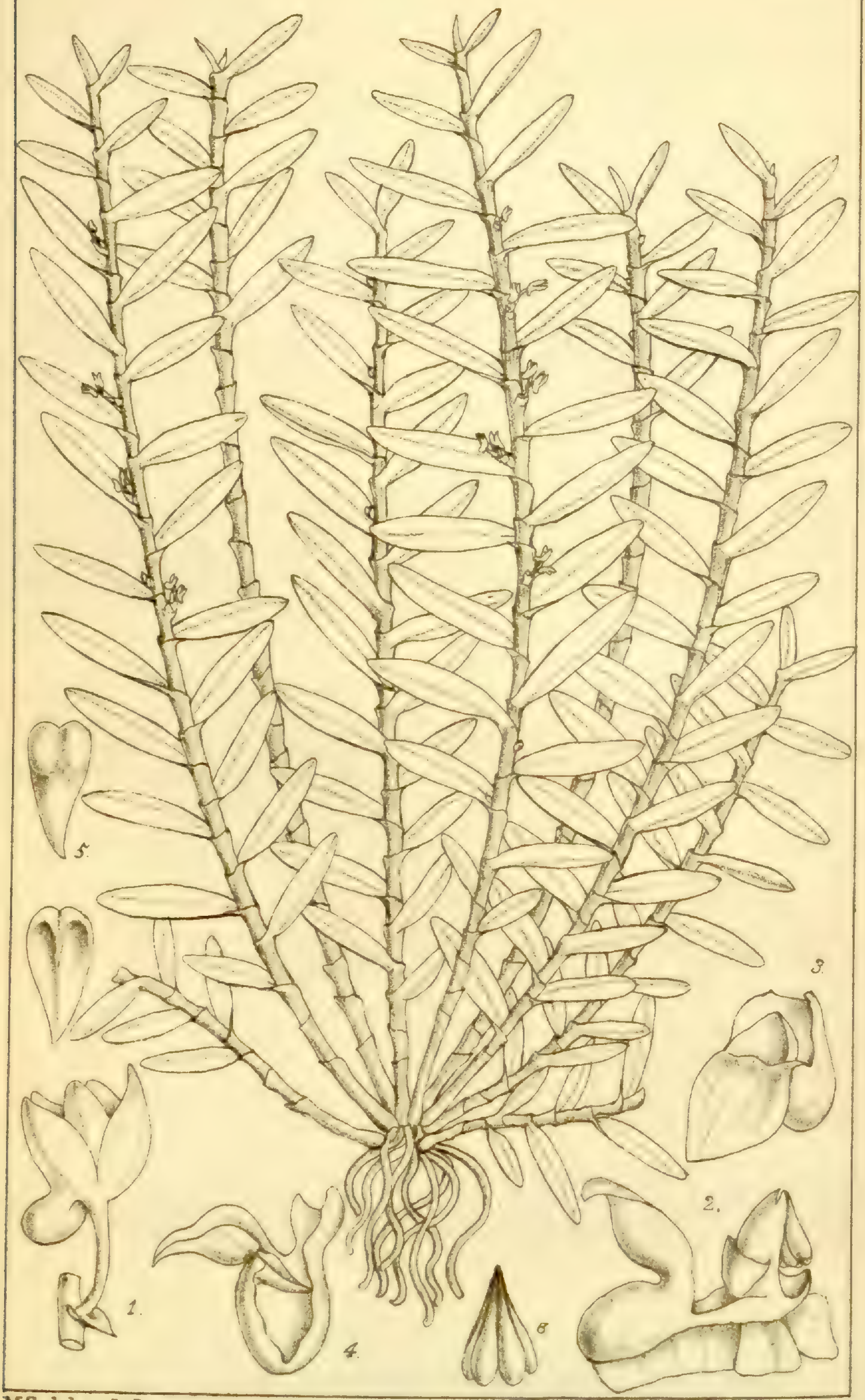
A. cordata, *Hook. f. Fl. Brit. Ind.* vi. 83; foliis oblongis apice obtuse bidentatis, spicis lateralibus brevissime pedunculatis incurvis pauciflоris vaginatis, bracteis latis, floribus parvulis punctatis, sepalis ovatis subacutis, mento rotundato, petalis obovatis, labello ovato-cordato basin versus membrana semilunari transversa instructo.

Hab. Malay Peninsula; Perak, *Father Scortechini.*

Caulis 7-pollicaris, crassitie pennæ anatinæ. *Folia* pollicaria, ad $\frac{1}{3}$ in. lata, submembranacea, inter dentes apicales apiculata; vaginæ $\frac{1}{4}$–$\frac{1}{2}$ poll. longæ. *Spicæ* $\frac{1}{4}$-pollicares, 3–4-flores; pedunculi $\frac{1}{4}$ poll. longi, validi, vaginati, vaginis inferioribus cupulæformibus, superioribus bracteisque ovatis demum reflexis nervosis; flores $\frac{1}{10}$ poll. longi. *Sepala petala*que 1-nervia. *Labellum* sepalis lateralibus minus, pedi brevi columnæ sessile. *Columna* inermis, apice dilatata, rostello erecto ovato concavo apice 2-dentato; anthera lanceolata.

I have seen but one specimen of this very distinct species.—J. D. H.

Fig. 1. Peduncle and spike 2. Flower, spread open. 3. Column with rostellum and a pollen-mass. 4. Anther. *All greatly enlarged.*



M.S. del. et lith.

Appendicula Kœnigii, Hk. f.

Plate 2149.

APPENDICULA KOENIGII, *Hook. f.*

Orchideæ. Subtribe Notylieæ.

A Koenigii, *Hook. f. Fl. Brit. Ind.* vi. 84; foliis lineari-oblongis oblongo-lanceolatisve apice obtusis minute 2-fidis, spicis lateralibus brevissimis 2–3-floris, floribus minutis, sepalis lateralibus ovatis acutis, mento globoso, petalis ellipticis, labello ovato v. oblongo basi appendice calceiforme instructo. Epidendrum hexandrum, *Koen. in Retz. Obs.* vi. 45.

Hab. India, *Herb. Rottler* (*in Herb. Kew.*).

Caules dense cæspitosi, 4–6-pollicares, graciles. *Folia* crebra, $\frac{1}{2}$–$\frac{3}{4}$ poll. longa, $\frac{1}{6}$–$\frac{1}{4}$ poll. lata, membranacea, vaginis $\frac{1}{8}$–$\frac{1}{4}$ poll. longis. *Spicæ* brevissime pedunculatæ, $\frac{1}{8}$–$\frac{1}{6}$ poll. longæ, patentes v. recurvæ, pedunculo vaginato; bracteæ minutæ, ovatæ; flores $\frac{1}{12}$–$\frac{1}{10}$ poll. longæ. *Sepala* et *petala* 1-nervia. *Labellum* sepalis brevius, 5-nerve. *Columna* brevissima, inermis, rostello magno; anthera cordato-lanceolata; pollinia 4.

But for the solitary specimen here figured from Rottler's Herbarium, it is very improbable that the *Epidendrum hexandrum* of Koenig would have been brought to light for some time to come. Unfortunately no locality is given for the plant, and as Rottler's Herbarium contains Orchids from both Indian Peninsulas, it may have been sent to him from the Malayan, where the genus is common. In its densely tufted habit and very minute flowers, it differs from all other species known to me.—J. D. H.

Fig. 1. Flower. 2. Lip and column. 3. Lip. 4. Same in section. 5. Anther. 6. Pollinia. *All greatly enlarged.*

M. S. del. et lith.

Appendicula lancifolia, Hk.f.

Plate 2150.

APPENDICULA LANCIFOLIA, *Hook. f.*

Orchideæ. Subtribe Notylieæ.

A. lancifolia, *Hook. f. Fl. Brit. Ind.* vi. 84; caulibus elongatis, foliis lanceolatis apice obtuse bidentatis, racemis terminalibus et lateralibus elongatis strictis simplicibus v. ramosis densi-multifloris, bracteis majusculis ovatis deflexis, sepalis lateralibus late ovatis, mento late cylindraceo, labello ovato-oblongo v. -obcuneato unguiculato basi membrana concava instructo, apice trifido lobis lateralibus parvis rotundatis, intermedio late ovato.

Hab. Malay Peninsula: Perak, on Gunong Batu Pateh, alt. 3,000–4,000 feet, *King's Collector*.

Caules 12–24 poll. longi, crassitie pennæ fere anserinæ. *Folia* 3–4 poll. longa, $\frac{2}{3}$–$\frac{3}{4}$ poll. lata, basi semiamplexicaulia, submembranacea, dorso infra apicem mucronulata; vaginis $\frac{1}{2}$-pollicaribus. *Racemi* 1–4 poll. longi, pedunculo brevi vaginis imbricatis lanceolatis erectis tecto, rachi stricta; bracteæ $\frac{1}{6}$ poll. longæ, concavæ pedicellis longiores, coriaceæ, nervosæ; flores $\frac{1}{6}$ poll. longi, aurei, disco rubro. *Sepala* lateralia subacuta, mento breviora, petalaque multo minora obovato-oblonga 2-nervia. *Labellum* sepalis lateralibus æquilongum, ungue lata. *Columna* brevissima, inermis, pede elongata; anthera late ovato-cordata; pollinia 4. *Capsula* $\frac{1}{2}$-pollicaris, fusiformis, costata.

Very like the Javanese *A. cristata*, Blume, but the limb of the lip is not "rounded emarginate and crested on either side."—J. D. H.

Fig. 1. Tip of leaf, showing the dorsal mucro. 2. Flower. 3. The same laid open. 4. Lip. 5. Column. 6. Anther. 7. Pollinia. *All enlarged.*

VOL. II.—PART III.] [OCTOBER.

HOOKER'S

ICONES PLANTARUM;

OR,

FIGURES, WITH DESCRIPTIVE CHARACTERS AND REMARKS,

OF NEW AND RARE PLANTS,

SELECTED FROM THE

KEW HERBARIUM.

FOURTH SERIES.

EDITED FOR THE BENTHAM TRUSTEES BY

DANIEL OLIVER, F.R.S., F.L.S.

EMERITUS PROFESSOR OF BOTANY IN UNIVERSITY COLLEGE, LONDON: LATE KEEPER OF THE HERBARIUM AND LIBRARY, ROYAL BOTANIC GARDENS, KEW.

Under the Authority of the Director of the Royal Botanic Gardens, Kew.

VOL. II.

OR VOL. XXII. OF THE ENTIRE WORK.

DULAU & CO.

37 SOHO SQUARE, LONDON.

1893.

SPOTTISWOODE AND CO. PRINTERS, NEW-STREET SQUARE, LONDON.

Price Four Shillings.

M.S. del et lith.

Appendicula Mamgayi, Hk. f.

Plate 2151.

APPENDICULA MAINGAYI, *Hook. f.*

Orchideæ. Subtribe Notylieæ.

A. Maingayi, *Hook. f. Fl. Brit. Ind.* vi. 85; caulibus elongatis robustis, foliis lineari-lanceolatis imo apice dilatatis et apiculatis v. bidenticulatis, racemis terminalibus erectis strictis multi-densifloris, bracteis lanceolatis patenti-incurvis, sepalis lateralibus late ovatis, mento rotundato v. subcylindraceo, labello elliptico v. obovato-oblongo obtuso integro basi membrana lata fornicata instructo.

Hab. Malay Peninsula; Perak, *Father Scortechini*; Penang, *Maingay*.

Caules 6–16 poll. longi, crassitie fere pennæ anserinæ. *Folia* 2–3 poll. longa, $\frac{1}{6}$–$\frac{1}{2}$ poll. lata, erecto-patentia, basi angustata, vaginis $\frac{1}{2}$–$\frac{3}{4}$ poll. longis. *Racemi* 1–2-pollicares, simplices v. basi ramosi, breviter pedunculati, rachi subflexuosa; bracteæ $\frac{1}{12}$–$\frac{1}{8}$ poll. longæ, basi deflexæ dein incurvæ, coriaceæ, 5-costatæ; flores $\frac{1}{16}$ poll. longi. *Sepala* lateralia obtusa, petalaque lineari- v. obovato-oblonga, 3-nervia. *Labellum* sepalis paullo longius, breviter unguiculatum, 5-nerve. *Columna* inermis, rostello brevi; anthera ovata, acuminata. *Capsula* $\frac{1}{3}$ poll. longa, fusiformis.

The Perak specimens are more slender than those from Penang; the mentum is longer and more cylindric, and the petals narrower and 1-nerved. The species should be compared with the Javanese *A. graminifolia*, Teysm. and Binnend. in *Tijdschr. Nederl. Ind.* xxiv. (1862) 32. The specimen figured is from Penang.—J. D. H.

Fig. 1. Flower (of Penang specimen). 2. Lip and column of the same. 3. Lip of the same. 4. Flower of Perak specimen. 5. Lip of the same. *All enlarged.*

M.J. del. et lith.

Appendicula echinocarpa, Hk. f.

Plate 2152.

APPENDICULA ECHINOCARPA, *Hook. f.*

Orchideæ. Subtribe Notylieæ.

A. echinocarpa, *Hook. f. Fl. Brit. Ind.* vi. 85; caulibus 4-6-pollicaribus gracilibus rigidis, internodiis $\frac{1}{6}$ poll. longis, foliis $\frac{1}{2}$–$\frac{1}{3}$-pollicaribus subimbricatis orbiculari-oblongis apice rotundatis retusis bidentatis dentibus incumbentibus sinu mucronulato, basi superiore reflexo, pedunculis brevibus terminalibus solitariis paucifloris, bracteis ovato-cordatis, capsula $\frac{1}{4}$-pollicari ellipsoidea turgida, valvis setis flexuosis obsitis.

Hab. Malayan Peninsula; Perak, on Gunong Batu Pateh, alt. 3,400 feet, *Wray*.

Though wanting the flowers, I have no hesitation in describing this interesting little species as new. It is the eighth species of the genus described from Perak, a locality that seems to abound in orchids.—J. D. H.

Figs. 1 and 2. Upper and lower surfaces of the upper half of a leaf. 4. Peduncle and capsule. *All enlarged.*

M S del et lith.

Thelasis bifolia, Hk. f.

PLATE 2153.

THELASIS BIFOLIA, *Hook. f.*

ORCHIDEÆ. Subtribe NOTYLIEÆ.

T. (Euthelasis) bifolia, *Hook. f. Fl. Brit. Ind.* vi. 86; foliis pseudobulbo 2 nis elliptico-lanceolatis, scapo elongato, spica laxiflora, sepalis lateralibus exalatis, labello ovato-oblongo v. elliptico obtuso.

HAB. Khasia Hills, *Lobb*.

Pseudobulbus subglobosus, $\frac{2}{3}$ poll. diam., nudus. *Folia* $3\frac{1}{2}$ poll. longa, sessilia, patula, acuta, nervosa, basi angustata. *Scapus* unacum spica 2-pollicaris, 10 poll. longus, gracilis, flexuosus, vaginis paucis brevibus remotis instructus. *Bracteæ* minutæ, ovatæ, ovaria æquantes. *Perianthium* $\frac{1}{8}$ poll. diam., molliter cellulosum. *Sepala* obtusa, lateralia late ovata. *Petala* oblonga v. oblongo-obovata, obtusa, 1-nervia. *Labellum* obscure 5-nerve. *Rostellum* elongatum, acuminatum, integrum.

I have seen but one specimen of this species, which was obtained in the Khasia Hills by T. Lobb when collecting orchids for Messrs. Veitch in 1850 or thereabouts.—J. D. H.

Fig. 1. Lateral, and 2. front, view of flower. 3. Column. *All greatly enlarged.*

M.S. del.et lith.

Thelasis khasiana, Hk.f.

PLATE 2154.

THELASIS KHASIANA, *Hook. f.*

ORCHIDEÆ. Subtribe NOTYLIEÆ.

T. (Euthelasis) khasiana, *Hook. f. Fl. Brit. Ind.* vi. 87: foliis pseudobulbo solitariis 3 4-pollicaribus elongatis linearibus v. a basi ultra medium sensim dilatatis obtusis, scapo unacum spica laxiflora folium æquante gracili, sepalis lateralibus exalatis, labello elliptico-ovato subacuto.

HAB. Khasia Hills, alt. 3,000–4,000 feet, *Lobb*, *J. D. H.*, and *T. Thomson*.

Pseudobulbus $\frac{3}{4}$ poll. diam., obturbinatus v. depresso-globosus, nudus. *Folium* $\frac{1}{2}$ poll. latum. *Scapus* flexuosus, vaginis paucis brevibus instructus; spica $1\frac{1}{2}$–2 poll. longa; bracteæ minutæ, late ovatæ v. ovato-lanceolatæ, ovaria æquantes v. paullo breviores. *Perianthium* $\frac{1}{6}$ poll. latum. *Sepala* lateralia ovata v. ovato-lanceolata, obtusa. *Petala* oblongo-lanceolata, obtusa. *Labellum* 3-nerve. *Rostellum* elongatum, acuminatum, integrum.—J. D. H.

Fig. 1. Lateral, and 2. front, view of flowers. 3. Column and anther. 4. Anther. *All greatly enlarged.*

M.S. del. et lith.

Thelasis longifolia, Hk. f.

Plate 2155.

THELASIS LONGIFOLIA. *Hook. f.*

Nat. Ord. Orchideæ. Subtribe Notylieæ.

T. (**Euthelasis**) **longifolia**, *Hook. f. Fl. Brit. Ind.* vi. p. 87; foliis pseudobulbo solitariis 6–9-pollicaribus a basi ultra medium sensim dilatatis apice rotundatis scapo valido paucivaginato longioribus, spica laxiflora, sepalis lateralibus exalatis, labello ovato acuminato.

Hab. Khasia Hills, alt. 3,000–4,000 feet, *J. D. H.* and *T. Thomson.*

Pseudobulbus depresso-globosus, $\frac{3}{4}$ poll. diam., nudus. *Folium* $\frac{3}{4}$–$1\frac{1}{4}$ poll. latum, fere petiolatum. *Scapus* unacum spica laxiflora bipollicari 6–7 poll. longus. *Bracteæ* minutæ, late ovatæ. *Perianthium* fere $\frac{1}{4}$ poll. latum. *Sepala* lateralia ovato-oblonga, obtusa. *Petala* oblongo-lanceolata. *Labellum* 3-nerve. *Rostellum* elongatum, acuminatum, integrum.

Thelasis is a genus the flowers of which, being of a very soft, lax, succulent texture, are very difficult of examination in herbarium specimens. In this respect of texture the flowers resemble those of the very far removed genus *Phreatia* in *Epidendreæ*. *T. longifolia* is very closely allied to *T. khasiana*, but is a much larger plant in foliage and flowers, and has a very robust scape.—J. D. H.

Fig. 1. Flowers. 2. Column. *Both enlarged.*

M.S. del, et lith.

Thelasis elata, Hk. f.

OXYANTHERA ELATA, *Hook. f.*

Orchideæ. Subtribe Notylieæ.

O. elata, *Hook. f.*; foliis 10–14 poll. longis loriformibus apice rotundatis, vaginis compressis coriaceis, scapo gracillimo, racemo elongato laxifloro, sepalis oblongo-lanceolatis, labello lineari marginibus undulatis basi 2-auriculatis. Thelasis elata, *Hook. f. Fl. Brit. Ind.* vi. 87.

Hab. Malayan Peninsula; Perak, on decayed wood, *King's Collector.*

Rhizoma crassitie digiti minimi. *Folia* panca, ad 1 poll. lata; vaginæ 3–4 poll. longæ, ½ poll. latæ, complicatæ. *Scapus* foliis longior, flexuosus, vaginis 2-4 ½ poll. longis instructus. *Racemus* 6-pollicaris, gracilis; bracteæ ovatæ, acuminatæ, ovario breviores. *Flores* breviter pedicellati; perianthio ⅛ poll. lato. *Sepala* acuminata, nervis obscuris. *Petala* sepalis consimilia. *Labellum* subunguiculatum, obtusum v. subacutum; auriculis revolutis. *Rostellum* bipartitum.

In the 'Flora of British India,' following Blume, Lindley, Bentham, and Reichenbach, I referred Brongniart's genus *Oxyanthera* to *Thelasis*. A re-examination of both genera for the 'Icones' has convinced me that they should be kept apart, on the ground of the total difference in habit, *Oxyanthera* having no pseudobulb, but sheathing equitant leaves on a short stem, with the blade articulate on its complicate vagina, which sheathes the base of the scape; in the lip not being flat, but concave and 2-auricled above the very short claw; and in the rostellum, which is very long in both genera, being entire in *Thelasis*, but bipartite in *Oxyanthera*.—J. D. H.

Fig. 1. Flower. 2 Column and lip. 3. Lip. 4. Column with anther. 5. Anther. *All greatly enlarged.*

M.S. del, et lith.

Thelasis decurva, Hk.f.

Plate 2157.

OXYANTHERA DECURVA, *Hook. f.*

Orchideæ. Subtribe Notylieæ.

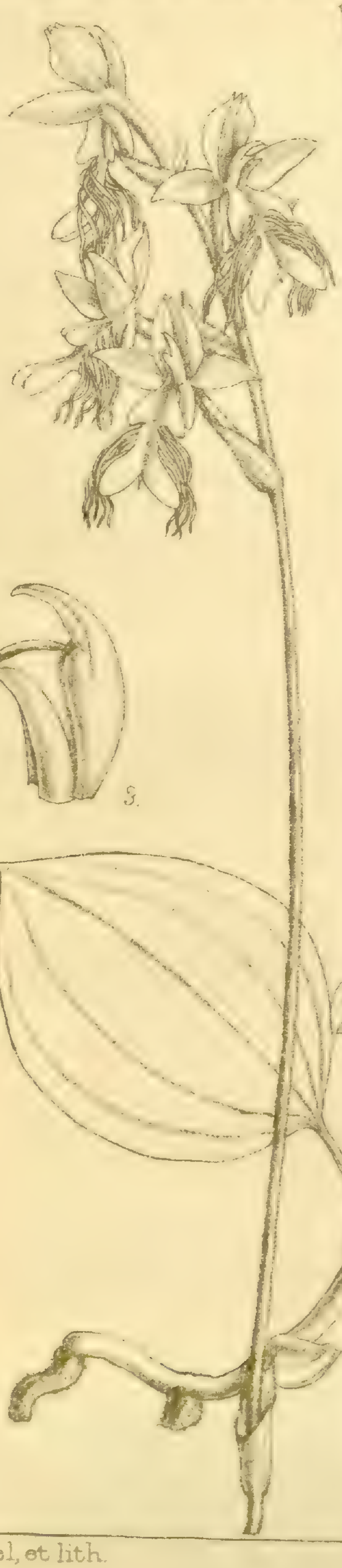
O. decurva, *Hook. f.*; foliis 4–6 poll. longis linearibus v. anguste lineari-lanceolatis apice angustatis, scapo gracili foliis breviore decurvo, racemo brevi densifloro, sepalis ovatis ovato-lanceolatisve, labello carnoso pugioniformi, marginibus incurvis, basi 2-auriculato. Thelasis decurva, *Hook. f. Fl. Brit. Ind.* vi. 87.

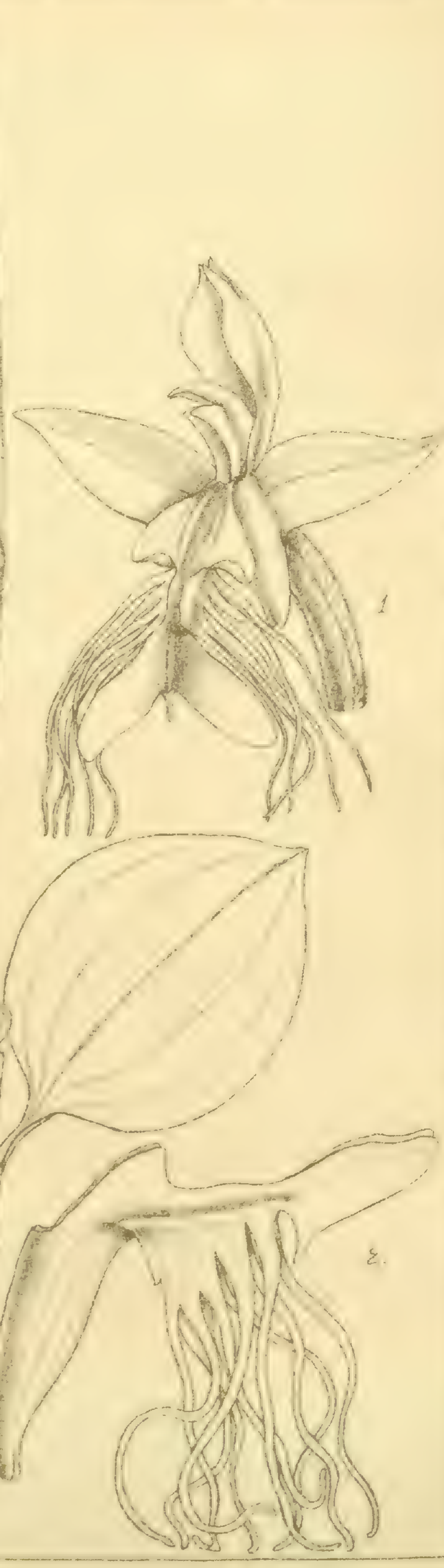
Hab. Malayan Peninsula: Singapore, at Krangi, *Ridley*; Penang, on Government Hill, *Maingay*.

Caulis. *Folia* $\frac{1}{2}$–$\frac{2}{3}$ poll. lata, apice subacuta obtusa v. oblique emarginata v. 2-loba lobis rotundatis; vaginæ 1–$1\frac{1}{2}$-pollicares. *Scapus* filiformis, vaginis 1–2 apicibus lanceolatis. *Racemus* pollicaris; bracteæ oblongæ ovario breviores. *Flores* pedicellati, perianthio $\frac{1}{6}$ poll. lato. *Sepala* et *petala* 1-nervia. *Labellum* basi concavum, membranaceum, dein carnosum, marginibus undulatis v. crispatis interdum ad axin labelli inflexis. *Columna* brevis, rostello bipartito.

Closely allied to *Oxyanthera micrantha*, Brongn., which is figured as having a broadly ovate obtuse lip, narrowed into a broad short claw.—J. D. H.

Fig. 1. Apex of leaf. 2. Lateral, and 3. front, view of flower. 4. Lip and column. 5. Lip. 6. Transverse section of lip towards the tip. *All greatly enlarged.*





M.S. del, et lith.

Anæctochilus elatior, Lindl.

Plate 2158.

ANÆCTOCHILUS ELATIOR, *Lindl.*

Orchideæ. Subtribe Spiranthеæ.

A. elatior, *Lindl. in Journ. Linn. Soc.* i. 178; foliis breviter petiolatis, late ovato-rotundatis acutis, scapo elato, spica pauciflora, labelli ungue basi hastatim dilatato isthmi fimbriis utrinque ad 6 lamina longioribus, laminæ alis oblongis divergentibus integerrimis. *Hook. f. Fl. Brit. Ind.* vi. 95.

Hab. Nilghiri Hills; near Walla Ghat, *McIvor.*

Caulis basi decumbens, dein ascendens, 1–2-pollicaris. *Folia* $1\frac{1}{2}$–$1\frac{3}{4}$ poll. lata, 5-nervia, viridia, petiolo $\frac{1}{4}$–$\frac{1}{2}$ poll. longo *Scapus* pedalis, vaginis paucis inflatis acuminatis auctus. *Spica* 3–4-flora; bracteæ $\frac{1}{3}$ poll. longæ, late ovato-lanceolatæ, ovario pubescente breviores. *Flores* majusculi, fere 1 poll. lati. *Sepala* lateralia ovato-lanceolata, acuta. *Petala* dimidiato-obovata, acuta. *Labellum* $\frac{2}{3}$ poll. longum, calcare conico inflato sepalis breviore. *Columnæ* alæ prominulæ; rostellum elongatum, incurvum.

I have seen only one specimen of this fine species, which resembles *A. Roxburghii,* Lindl., a much smaller plant, with golden netted nerves on the leaf, much larger cuneately-obovate lobes of the lip, and the spur as long as the sepals.—J. D. H.

Fig. 1. Flower. 2. Lip. 3. Column. *All enlarged.*

Plate 2159.

ANÆCTOCHILUS GRIFFITHII, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

A. Griffithii, *Hook. f. Fl. Brit. Ind.* vi. p. 96; foliis petiolatis ovato-rotundatis acutis v. apiculatis, spica multiflora, labelli ungue basi dilatato trapeziformi, isthmo dentato v. crenato, laminæ lobis cuneatis crenatis v. lobulatis.

Hab. Eastern Himalaya, *Griffith*; Naga hills in Upper Assam, *Prain*.

Caulis basi decumbens, dein ascendens, 2–3-pollicaris, foliosus. *Folia* $1\frac{1}{2}$–$1\frac{3}{4}$ poll. diam., 7-nervia, viridia, petiolo $\frac{1}{4}$–$\frac{1}{2}$ poll longo. *Scapus* 4–6-pollicaris; vaginæ 3, amplæ, laxæ, acuminatæ, v. infima foliacea. *Spica* 10–20-flora, stricta; bracteæ ovato-lanceolatæ, ovaria puberula æquantes v. superantes. *Flores* fere $\frac{1}{2}$ poll. lati. *Sepala* lateralia ovata, acuta. *Petala* dimidiato-spathulata, rostrata. *Labellum* $\frac{1}{2}$ poil. longum; lobi terminales ungui æquilongi, obcuncati v. dolabriformes, sinu acuto; calcare brevi incurvo saccato apice 2-fido. *Columna* brevis, marginibus in appendicem plicatam dilatatis; rostellum breve.

There is no habitat for Griffith's specimens, which were probably collected in the Patkoi hills, which adjoin those of Naga where Prain found his. In the latter habitat the claw of the lip presents rudiments of the fimbriæ which are so markedly developed in most of the species of the genus.—J. D. H.

Fig. 1. Flower from Griffith's specimen. 2. Petal. 3. Lip from Prain's specimen. 4. Column, spur, and base of lip. 5. Side view of column. *All enlarged.*

MS. del et lith.

Aræctochilus tetrapterus, Hk f.

ANÆCTOCHILUS TETRAPTERUS, *Hook. f.*

ORCHIDEÆ. Subtribe SPIRANTHEÆ

A. tetrapterus, *Hook. f. Fl. Brit. Ind.* vi. 96; foliis ovatis acutis acuminatisve breviter petiolatis, spica pauciflora, labelli ungue basi anguste alato isthmo elongato gracili integerrimo, laminæ lobis bifidis bipartitisve.

HAB. Munnipore; at Eerung, alt. 2,000 feet, *Clarke*.

Caulis basi decumbens, vaginatus, dein ascendens, paucifoliatus. *Folia* 1½–2 poll. longa, 5-nervia, petioli vaginis inflatis. *Scapus* 2-pollicaris, vaginis 2 magnis elongato-acuminatis; spica 1–2-pollicaris, tomentosa; bracteæ lanceolatæ, ovaria æquantes v. superantes. *Flores* ¾ poll. lati. *Sepala* late ovata, acuminata, *petala*que obliqne lanceolata apicibus pilis deciduis stellatim ornata. *Labellum* ½ poll. longum, ungue basi in auriculas breves producto, isthmo canaliculato arcuato; alis rectangulis divaricatis, intervallo apiculato; calcare perbrevi conico inflato intus infra columnam appendiculis 2 conicis carnosis instructo. *Columna* brevis, marginibus superne in cornua ascendentia obtusa productis, basi velo bifido calcar occludente instructa.

From the shortness of its spur this species of *Anectochilus* approximates nearest of all to *Odontochilus*, and tends to invalidate the very artificial character by which these genera are kept apart—namely, that in the former genus the spur, even if reduced to a sac, is exposed, whereas in *Odontochilus* the sac is concealed by the bases of the lateral sepals, which hence form a mentum.—J. D. H.

Fig. 1. Lateral, and 2. front, view of flower. 3. Column and spur of lip, the latter laid open. *All enlarged.*

PLATE 2161.

ODONTOCHILUS MACRANTHUS, *Hook. f.*

ORCHIDEÆ. Subtribe SPIRANTHEÆ.

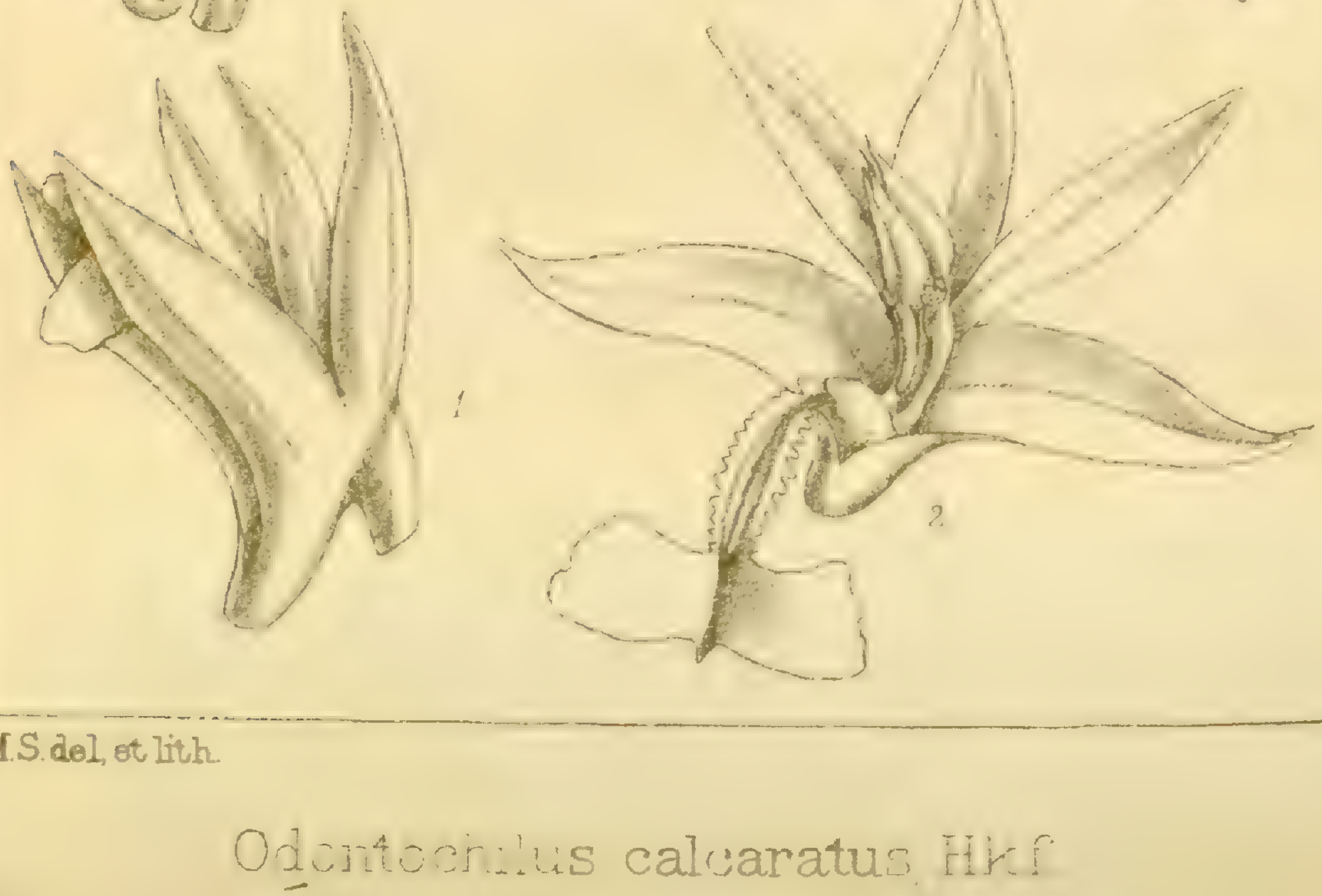
O. (**Myrmechis**) **macranthus**, *Hook. f. Fl. Brit. Ind.* vi. 98; caule brevi robusto folioso 1-floro, foliis $\frac{3}{4}$-pollicaribus subsessilibus ovatis acutis, labelli ungue angusto marginibus involutis integerrimis, limbo orbiculari emarginato marginibus basin versus undulato-crenatis.

HAB. Malayan Peninsula, Perak, *Father Scortechini*; on Maxwell's Hill, *Wray*.

Caulis basi decumbens, nodosus, dein 2–3-pollicaris, erectus, flexuosus, crassitie pennæ corvinæ. *Folia* 1-nervia. *Flos* albus, $1\frac{1}{4}$ poll. latus; ovario foliis longiore breviter pedunculato bractea ovata vaginato. *Sepala* erecto-patentia, lateralia lineari-oblonga, acuminata, basi gibba, 1-nervia. *Petala* dimidiato-ovata, acuminata. *Labellum* $\frac{3}{4}$ poll. longum; unguis laminæ carnosulæ ima basi cordatæ æquilongus; saccus rotundatus, intus carunculis 2 instructus; velum ad basin columnæ 2-fidum. *Columna* brevissima, rostello magno erecto 2-fido, lobis obtusis. *Anthera* lineari-lanceolata; pollinia clavata; caudicula communi elongata, filiformi, glandula elongata.

As observed in 'Fl. Brit. Ind.' this resembles the Javan *Myrmechis glubra*, Blume, but the narrower flowers, long anther, pollen, and rostellar arms distinguish it.—J. D. H.

Fig. 1. Flower. 2. Column and lip with the sac laid open. *Both enlarged.*



M.S. del, et lith.

Odontochilus calcaratus Hkf

Plate 2162.

ODONTOCHILUS CALCARATUS, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

O. (Myrmechis) calcaratus, *Hook. f. Fl. Brit. Ind.* vi. 99; caule robusto folioso pauciflоro, foliis parvis subsessilibus ovatis acutis v. acuminatis, labelli ungue basi calcarato dein elongato dilatato crenato, alis quadratis rectangulatim divaricatis.

Hab. Malayan Peninsula; Perak, *Father Scortechini*; alt. 3,900 feet, *Wray*.

Caulis 3–5-pollicaris, flexuosus, crassitie pennæ passerinæ. *Folia* $\frac{1}{4}$–$\frac{1}{3}$ poll. longa, sessilia v. breviter petiolata, acuta v. apice aristata. *Pedunculus* brevis, 2–3-florus; bracteæ lanceolatæ, ovaria æquantes. *Flores* albi, $\frac{1}{2}$ poll. lati. *Sepala* lateralia ovato-lanceolata, acuminata, basi in mentum calcariforme conicum obtusum connata. *Petala* lineari-lanceolata. *Labellum* $\frac{1}{3}$ poll. longum, ungue isthmo æquilongo sed angustiore, basi cymbiformi et in calcar conicum rectum v. apice inflexum productum. *Columna* brevis, basi processu elongato bifido in calcar descendente instructa; rostellum elongatum, erectum, bifidum, segmentis angustis acutis; anthera ovato-lanceolata; pollinia pyriformia, caudiculis liberis crassis striatis; glandula oblonga.

Wray describes the leaves as green dashed with crimson, veined with gold, and bordered with red, the flowers white. Scortechini says, leaves dark purple, sepals pale carnation, lip white.

This species invalidates Blume's genus *Myrmechis*, of which it has the habit, but the crenate lip-claw of *Odontochilus*.—J. D. H.

Fig. 1. Lateral, and 2. front, view of flower. 3. Lip with the spur removed. 4. Column showing the descending bifid appendage. 5. Pollinia. 6. Column and base of lip with spur. *All enlarged.*

3.

2.

1.

4.

M.S. del, et lith.

Odontochilus pumilus, Hk.f.

Plate 2163.

ODONTOCHILUS PUMILUS, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

O. (**Myrmechis**) **pumilus**, *Hook f. Fl. Brit. Ind.* vi. 99; caulibus brevibus subrobustis flexuosis paucifloris, foliis parvis breviter petiolatis ovatis, labelli ungue e basi saccato in unguem elongatum crenulatum sensim angustato, laminæ parvæ alis oblongis v. quadratis sinu acuto. Cheirostylis pusilla, *partim*, *Lindl. in Journ. Linn. Soc.* i. 188 (*non Gen. and Sp. Orchid.*).

Hab. Sikkim Himalaya, alt. 8,000-10,000 feet, *J. D. H.* and *T. Thomson, King.*

Caulis 3–4-pollicaris, basi decumbens, remote vaginatus, dein ascendens. *Folia* $\frac{1}{2}$–$\frac{1}{3}$ poll. longa, crassiuscula, nervis obscuris, acuta acuminata v. aristata. *Pedunculus* brevis, 2–3-florus, vagina solitaria ciliata; bracteæ ovario breviores, oblongæ, ciliatæ. *Flores* $\frac{1}{4}$ poll. lati, albi. *Sepala* lateralia triangulari-ovata, obtusa, dorsali apice recurva. *Petala* obliqua, oblongo-lanceolata. *Labellum* $\frac{1}{4}$ poll. longum; saccus intus callis magnis instructus, lamina ungue brevior, alæ ad angulum 45° confluentes, crassiusculæ. *Columna* brevis; anthera magna.

As pointed out in the 'Flora of British India,' this species so closely resembles *Cheirostylis pusilla*, that it is difficult to distinguish dried specimens of each without analysis, when the differences are clear enough. In *Cheirostylis pusilla* the sepals are connate to the middle, the lobes of the lip toothed, its claw finely hairy towards the tip, its sac with bristles on the nerves within, and the two frontal fleshy appendages are as long as the rostellar arms. - J. D. H.

Fig. 1. Flower and bract. 2. Dorsal sepal. 3. Petal. 4. Column and lip with the sac laid open. *All enlarged.*

M.S. del, et lith.

Odontochilus crispus, Hk. f.

Plate 2164.

ODONTOCHILUS CRISPUS, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

O. (**Euodontochilus**) **crispus,** *Hook. f. Fl. Brit. Ind.* vi. 99; caule ascendente paucifoliato paucifloro, foliis sessilibus late ovatis marginibus undulato-crenatis, ovario glaberrimo, bracteis sepalisque ciliolatis, labelli ungue basi saccato dein elongato angusto integerrimo v. obscure paucicrenato, laminæ alis divaricatis sinu acuto acinaciformibus margine exteriore dentatis.

Hab. Sikkim Himalaya, alt. 5,000–6,000 feet (*Ic. Cathcart*), *Clarke*; Khasia hills, at Sururеem, alt. 5,000 feet, *Clarke*.

Caulis basi decumbens, nudus, dein ascendens, unacum pedunculo 6–8-pollicaris, crassitie pennæ corvinæ. *Folia* 2–4, $\frac{3}{4}$–1 poll. longa, crassiuscula, 3-nervia, petiolo $\frac{1}{6}$–1 poll. longo *Pedunculus* basi vaginis lanceolatis acuminatis erectis instructus, 4–8-florus; bracteæ ovario breviores; ovaria $\frac{1}{3}$–$\frac{1}{2}$ poll. longa. *Sepala* late ovata, patenti-recurva, viridia albo-marginata, mentum saccatum. *Petala* alba, dimidiatim ovata, in rostrum angustata; nervo marginali. *Labellum* album, $\frac{1}{2}$ poll. longum, s palis multo longius; lamina $\frac{3}{4}$ poll. lata; saccus intus lamella inter callos crassos recurvos crenulatos posita instructus. *Columna* brevissima, rostello erecto 2-fido segmentis acutis; pollinia globosa in apice truncato caudiculæ amplæ triangularis coriaceæ sessilia, glandula parva globosa.

The pollinia of this genus present most singular and diverse forms, which will be best understood by a reference to the analyses on this and Plates 2162 and 2165 to 2168 inclusive.—J. D. H.

Fig. 1. Flower and bract. 2. Dorsal sepal. 3 Petal. 4. Lip and column. 5. Interior of sac of lip. 6. Column. 7. Pollinia. *All enlarged.*

2.

3.

4.

2.

M S del et lith

Odontochilus pectinatus, Hk.f

Plate 2165.

ODONTOCHILUS PECTINATUS, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

O. (**Euodontochilus**) **pectinatus**, *Hook. f. Fl. Brit. Ind.* vi. 99; caule elongato folioso, foliis petiolatis ovatis acutis, spica 6–8-flora pubescente, labelli ungue basi integerrimo dein elongato pectinatim dentato, laminæ lunatæ alis oblongis subfalcatis integerrimis sinu lato.

Hab. Malayan Peninsula; Perak, alt. 3,000–4,000 feet, *King's Collector*; on Maxwell's Hill, *Wray*.

Caulis crassitie pennæ anserinæ, basi decumbens, dein erectus, 6–9-pollicaris. *Folia* alterna, $1\frac{1}{2}$–2 poll. longa, 5-nervia, crassiuscula, pallide viridia; petiolus $\frac{1}{4}$–$\frac{1}{5}$ poll. longus. *Pedunculus* unacum spica 3–4-pollicaris, basi vagina foliacea instructus; bracteæ $\frac{1}{3}$ poll. longæ, lanceolatæ, villosæ, ovariis glabris æquilongæ; *flores* $\frac{2}{3}$ poll. lati, albi. *Sepala* lateralia ovato-lanceolata, acuminata, pubescentia. *Petala* oblique lanceolata, apicibus attenuatis. *Labellum* $\frac{2}{3}$ poll. longum; alæ divaricatæ, obtusæ, sinu lato tuberculo interposito; saccus intus callis 2 magnis carnosis 2-lobis instructus. *Columna* brevissima, auriculis 2 parvis acutis antice marginata; rostellum elongatum, 2-partitum, lobis angustis acuminatis; anthera elongato-lanceolata; pollinia obovoidea, apice caudicula crassa duplo longiore sessilia, glandula parva oblonga.—J. D. H.

Fig. 1. Flower. 2. Lip with the sac laid open, showing the calli. 3. Column. 4. Pollinia. *All enlarged.*

M.S. del, et lith.

Odontochilus brevistylis, Hk. f.

Plate 2166.

ODONTOCHILUS BREVISTYLIS. *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

O. (Euodontochilus) brevistylis, *Hook. f. Fl. Brit. Ind.* vi. 100; caule elongato apicem versus paucifoliato, foliis petiolatis ovatis acuminatis, spica pauciflora pubescente, labello basi saccato, ungue paucispinoso, laminæ alis semicircularibus integris.

Hab. Malayan Peninsula; Perak, on Gunong Batu Pateb, alt. 3,400 feet, *Wray*.

Caulis e basi decumbente erectus, spithamæus, crassitie pennæ corvinæ, remote vaginatus. *Folia* 1½–2 poll. longa, 5-nervia, pallide viridia; petiolus ¼–½ poll. longus. *Pedunculus* pollicaris, nudus; spica 3 4-flora; bracteæ lanceolatæ, ovaria glabra subrostrata subæquantes; flores ½ poll. lati, albi. *Sepala* lateralia oblique et late ovata, pilis deciduis apice barbellata; dorsali multo minore. *Petala* dimidiato-ovata, rostrata. *Labellum* ⅔ poll longum; unguis lamina paullo longior, spinis utrinque 3–4 falcatim curvis superioribus majoribus ornatus; alæ approximatæ, ungue paullo breviores, sinu angusto; saccus intus basi semiseptatus et callis 2 cylindraceis truncatis instructus. *Columna* brevissima; rostellum breve, 2-lobum; anthera ovata; pollinia subglobosa, apice truncato caudiculæ dilatatæ late triangularis coriaceæ sessilia, glandula parva oblonga.

The pollinia resemble those of *O. crispus* (t. 2164).—J. D. H.

Fig. 1. Flower. 2. Lip with the sac laid open, showing the carunc les and lamella. 3. Column. 4. Anther. 5. Pollinia. *All enlarged*.

M.S. del, et lith.

Odontochilus Elwesii, C.B.Cl.

ODONTOCHILUS ELWESII, *Clarke*.

ORCHIDEÆ. Subtribe SPIRANTHEÆ.

O. (**Euodontochilus**) **Elwesii**, *Clarke ex Hook. f. Fl. Brit. Ind.* vi. 100; caule crassiusculo paucifoliato, foliis ovatis 3-costatis breviter petiolatis, pedunculo elongato et inflorescentia hirsutis, labelli ungue dilatato pectinatim paucidentato, laminæ 2-alatæ alis subsemicircularibus sinu lato.

HAB. Sikkim Himalaya, alt. 4,000-6,000 feet, *Clarke*, *King*; Khasia hills, on Shillong, alt. 6,100 feet, *Clarke*; Munneypore on Kohima, *Prain*.

Caulis basi decumbens, crassus, articulatus, ad nodos constrictus, dein erectus, 3–4-pollicaris. *Folia* 1½ 2 poll. longa, crassiuscula, luride viridia, costis crassis rubris; petiolus brevis, crassus. *Pedunculus* 2–4-florus, validus, nudus v. vaginis 1–2 tomentosis instructus; bracteæ ½ poll. longæ, ovaria tomentosa æquantes. *Sepala* viridia apicibus purpureis, lateralia ⅓ poll. longa, dorsali brevi latissima acuminata; mentum latum, 2-lobum. *Petala* dimidiato orbicularia, rostrata, alba. *Labelli* unguis sepala vix superans, irregulariter spinuloso-dentata, alba, spinulis purpureis; lamina majuscula, alis latis integerrimis v. obscure crenatis albis, sinu lato; saccus scrotiformis, 2-lobus, intus semiseptatus et callis 2 crassis deformibus instructus. *Columna* brevis, crassa, basi birostrata; rostellum breve, 2-fidum, segmentis subulatis; anthera oblonga, rostrata; pollinia elongato-pyriformia, glandula parva lineari-oblonga sessilia.—J. D. H.

Fig. 1. Flower. 2. Petal. 3. Column and claw and sac of lip. 4. Sac laid open, showing the septum and caruncles. *All enlarged.*

M.S. del, et lith.

Odontochilus Clarkei, Hk.f.

Plate 2168.

ODONTOCHILUS CLARKEI, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

O. (**Euodontochilus**) **Clarkei**, *Hook. f. Fl. Brit. Ind.* **vi. 100; caule** elongato remote vaginato paucifoliato, foliis petiolatis ellipticis acutis, pedunculo elongato spicaque (**sepalis exceptis**) **multiflora** tomentosis, mento 0, labelli ungue basi facie bilamellato et marginibus utrinque late auriculatis dein 2–3 spinoso, laminæ alis dolabriformibus integerrimis **sinu angusto.**

Hab. Sikkim Himalaya; at Mongpo, alt. 3,000 feet, *Clarke.*

Caulis spica inclusa pedalis, crassitie pennæ anatinæ, 2–3-foliatus. *Folia* 2–2½ poll. longa, subobliqua, 3–5-nervia; petiolus ½–1-pollicaris. *Pedunculus* evaginatus. *Spica* 5–6-pollicaris, subdensiflora; bracteæ lineari-lanceolatæ, ⅓–⅔ poll. longæ, ovaria villosa æquantes. *Flores* ⅔ poll. lati. *Sepala* rosea, glabra, lateralia obliqua late ovata, basi contracta, mentum non efficientia; dorsali rotundata, mucronata. *Petala* sepalo dorsali cohærentia. *Labellum* ⅔ poll. longum, lamina profunde 2-alata, sepalis integerrimis, ungui æquilongis; saccus parvus, sepalis vix inclusus, intus semiseptatus et caruncules 2 elongatis cornuformibus incurvis ad basin columnæ instructus. *Columna* brevis, marginibus productis truncatis; rostellum bipartitum, segmentis subulatis; anthera elongata, attenuato-acuminata; pollinia oblongo-globosa caudiculæ validæ flexuosæ striolatæ affixa, glandula minuta.

This species is intermediate between *Odontochilus* and *Anœctochilus*, having the small sac lamellate within and more or less covered by the sepals of the former genus, but the sepals contracted at the base and not forming a mentum, and the spurless lip of the latter. It appears to me that these two genera might well be combined, perhaps together with *Cheirostylis*, which only differs in the cohesion of the sepals into a tube, and the appendages of the column; but if so, *Zeuxine* must follow. These and all the other *Spiranthеæ* of India want a very careful analysis of living specimens; so long as the position of the stigma is unknown in so many, and the true nature of appendages of the column in all, the limitation of the genera must be uncertain. I once hoped that the very remarkable differences in the structure of the pollinia would afford available generic characters, but was obliged to abandon this hope. The analyses of the orchids figured in these 'Icones,' and those described in the pages of the 'Flora of British India,' have been a work of great labour, executed first by myself at various periods between 1882 and 1892; and those of the 'Icones' have been more recently, and quite independently, revised by my accomplished artist, Miss Smith, who has portrayed the results of our analyses, together with the drawings of the plants themselves.—J. D. H.

Fig. 1. Flower. 2. Column and base of lip with the sac laid open, showing the septum and caruncles. 3. Pollinia. ***All enlarged.***

M.S. del, et lith.

Listera tenuis, Lindl.

PLATE 2169.

LISTERA TENUIS, *Lindl.*

ORCHIDEÆ. Subtribe SPIRANTHEÆ.

L. tenuis, *Lindl. in Journ. Linn. Soc.* i. 176; gracilis, caule teretiusculo medio foliato, foliis ovatis acutis, labello cuneato-obcordato, columna brevi. *Hook. f. Fl. Brit. Ind.* vi. 104.

HAB. Sikkim Himalaya; Lachen Valley, alt. 11,500 feet, *J. D. H.*

Caulis 4–5-pollicaris, glaberrimus, infra folia univaginatus. *Folia* ½–1 poll. longa, sessilia, 3–5-nervia. *Pedunculus* gracillimus, nudus. *Spica* 1–2 pollicaris, puberula, 6–10-flora; flores brevissime pedicellati, ⅓ poll. lati, virides; bracteæ ovaria æquantes v. iis breviores, ovatæ, acutæ, membranaceæ. *Sepala* lateralia ovato-lanceolata, acuminata, dorsali *petalaque* lineari-oblonga, obtusa. *Labellum* sepalis longius, lobis rotundatis, sinu acuto. *Columna* vix incurva, anthera obtusa; rostellum breve, concavum, obtusum.—J. D. H.

Fig. 1. Front, and 2. side, views of flower. 3. Front, and 4. side, views of column. *All enlarged.*

M S. del, et lith.

Listera pinetorum, Lindl.

PLATE 2170.

LISTERA PINETORUM, *Lindl.*

ORCHIDEÆ. Subtribe SPIRANTHEÆ.

L. pinetorum, *Lindl. in Journ. Linn. Soc.* i. 175; caule robusto angulato longo supra basin foliato, foliis sessilibus cordato-orbicularibus, labello e basi angusta oblanceolato bifido sinu angusto lobis subacutis. *Hook. f. Fl. Brit. Ind.* vi. 104.

HAB. Sikkim Himalaya; in pine woods of the Lachen Valley, alt. 10,000–11,000 feet, *J. D. H.*; Chumbi Valley, *King*.

Caulis 4–8-pollicaris, glaber, ima basi vaginatus. *Folia* 1–1¼ poll. lata, 5–7-nervia, nervis reticulatis. *Pedunculus* brevis, robustus. *Spica* 6–8-flora, pubescens; flores sessiles, decurvi, ½–¾ poll. longi; bracteæ herbaceæ, erectæ, oblongæ, obtusæ, ovario longiores. *Sepala* ovato-oblonga, brunnea. *Petala* linearia, obtusa. *Labellum* sepalis bis terve longius, sinu acuto v. obtuso. *Columna* elongata, incurva, teretiuscula; anthera brevis, obtusa; rostellum rotundatum.—J. D. H.

Fig. 1. Flower. 2. Column. *Enlarged.*

M.S. del. et lith.

Listera micrantha, Lindl.

PLATE 2171.

LISTERA MICRANTHA, *Lindl.*

ORCHIDEÆ. Subtribe SPIRANTHEÆ.

L. micrantha, *Lindl. in Journ. Linn. Soc.* i. 176; gracillima, foliis subradicalibus petiolatis late ovatis, labello abbreviato truncato breviter 3-lobo, columna brevissima. *Hook. f. Fl. Brit. Ind.* vi. 104.

HAB. Sikkim Himalaya; Lachoong Valley, alt. 10,000 feet, *J. D. H.*

Caulis brevis. *Folia* ½ poll. longa, 3-nervia, petiolo brevi. *Pedunculus* 2–2½-pollicaris, medio univaginatus. *Spica* 1–1½-pollicaris, puberula, laxiflora; flores brevissime pedicellati, minuti; bracteæ minutæ, ovatæ, acutæ, ovario breviores. *Sepala* lateralia late ovata, obtusa, decurva, dorsali oblongo. *Petala* ovato-lanceolata. *Labellum* sepalis brevius, quadrato-cuneatum, decurvum, lobis late ovatis obtusis, sinubus rotundatis. *Columna* latior quam longa; anthera ovoidea; rostellum breve, rotundatum.—J. D. H.

Fig. 1. Lateral, and 2. front, view of flower. 3. Lip and column. *All greatly enlarged.*

M. S. del, et lith.

Zeuxine goodyeroides, Ldl.

Plate 2172.

ZEUXINE GOODYEROIDES, *Lindl.*

Orchideæ. Subtribe Spiranthеæ.

Z. (Monochilus) goodyeroides, *Lindl. Gen. and Sp. Orchid.* 486; subrobusta, foliis breviter petiolatis ovatis, pedunculo elongato, spica multiflora glabriuscula v. pilosula, floribus subsecundis, labello brevi, hypochilo magno saccato, epichilo parvo orbiculari-oblongo v. latissime obcordato. *Hook. f. Fl. Brit. Ind.* vi. 107; Monochilus galeatus, *Lindl. in Journ. Linn. Soc.* i. 187.

Hab. Eastern temperate Himalaya, from Sikkim, alt. 6,000–8,000 feet, to Mishmi, *Griffith*; and Khasia hills at Moflong, *Griffith*; Pegu, *Kurz* (*in Herb. Calcutt.*).

Caulis basi decumbens, radicibus crassis. *Folia* 1–1½ poll. longa, sessilia v. breviter peticlata, 3-nervia, viridia fascia media pallida, obtusa acuta v. acuminata, petiolo ¼ poll. longo. *Pedunculus* 3–6-pollicaris, vaginis pancis lanceolatis. *Spica* 2–3 pollicaris, subdensiflora; bracteæ ¼–⅓ poll. longæ, ovaria glaberrima æquantes. *Flores* depressi. *Sepala* rosea, lateralia patentia, oblongo-lanceolata, obtusa, dorsali hypochilo incumbente ovato. *Petala* falcata, obtusa, alba. *Labellum* album, sepalis æquilongum; hypochilum subhemisphæricum, coriaceum, medio intus 1-costatum, et callis 2 cornuformibus recurvis instructum, epichilo hypochilo minore integerrimo v. subbilobo membranaceo. *Columna* brevis; rostellum erectum, bipartitum; anthera acuminata; pollinia pyriformia caudiculæ gracili affixa, glandula oblonga.

There are two drawings of the Sikkim plant in Herb. Calcutt.; one has rosy, the other green sepals.—J. D. H.

Fig. 1. Lateral, and 2. front, view of flower. 3. Column and lip. 4. Lip removed, showing the costa and calli. *All enlarged.*

MS. del et lith.

Zuccagnia reniformis Hk f

ZEUXINE RENIFORMIS, *Hook. f.*

ORCHIDEÆ. Subtribe SPIRANTHEÆ.

Z. (Monochilus) reniformis, *Hook. f. Fl. Brit. Ind.* vi. 107; caule elongato gracili apicem versus paucifoliato, foliis petiolatis ovato-lanceolatis acuminatis, pedunculo spicaque multiflora pubescentibus, labello basi saccato in unguem brevem angustato, lamina bialata v. oblata indivisa v. dentata lateribus basi inflexis.

HAB. Malayan Peninsula; Perak, *Father Scortechini.*

Caulis fere pedalis, erectus, crassitie pennæ anatinae, internodiis inferioribus bipollicaribus, nudis, superioribus brevioribus vaginatis. *Folia* obliqua, 3–3½ poll. longa, membranacea, basi rotundata, petiolo gracili ½ poll. longo. *Pedunculus* 2–3-pollicaris, vaginis lineari-lanceolatis 3–4 instructus. *Spica* 2–pollicaris, laxiflora; bracteæ lanceolatæ, hyalinæ, ovario pubescente longiores. *Flores* ⅓–½ poll. lati. *Sepala* lateralia patentia, ovata, obtusa. membranacea. *Petala* dimidiato-ovata, acuminata, erecta. *Labellum* sepalis æquilongum, sacco intus semiseptato et callis 2 crassis revolutis instructo, unguis marginibus involutis; columna brevissima, rostelli brachia erecta, fusiformia v. bucciniformia; anthera lanceolata, acuminata; pollinia pyriformia, facie caudiculæ lamelliformis cuneato-quadratæ basi et apice truncatæ segregatim affixa, glandula magna triangulari, cum caudicula continua.

I must refer to the figures 4 and 5 to explain the form of the most curious caudicle and gland of this species, which it must be difficult to understand from the description. A modification of it is given at figures 5 and 6 of Pl. 2175, and it will be seen that both are extreme developments of that represented at fig. 5 of Pl. 2174.—J. D. H.

Fig. 1. Flower. 2. Column and lip, with the sac laid open, showing the semi-septum and calli. 3. Column and sac of lip. 4 and 5. Pollinia. *All enlarged.*

Plate 2174.

ZEUXINE REGIA, *Benth.*

Orchideæ. Subtribe Spiranthеæ.

Z. (**Monochilus**) **regia**, *Benth. in Gen. Plant.* iii. 600; caule elongato paucifoliato, foliis petiolatis elliptico-lanceolatis, pedunculo elongato spicaque pauciflora pubescenti-pilosis, labelli sepalis longioris lamina 2-alata alis divaricatis late cuneatis v. quadrato-orbicularibus. *Hook. f. Fl. Brit. Ind.* vi. 108. Monochilus regius, *Lindl. Gen. and Sp. Orchid.* 487. *Thw. Enum. Pl. Zeyl.* 313.

Hab. Ceylon; in damp woods ascending to 4,000 feet, *Walker, &c.*

Caulis gracilis, 4–6-pollicaris, internodiis inferioribus 1-2-pollicaribus nudis, superioribus foliaceo-vaginatis. *Folia* $1\frac{1}{2}$–$2\frac{1}{2}$ poll. longa, acuta, viridia fascia mediana pallida, petiolo $\frac{1}{2}$ poll. longo. *Pedunculus* 3-5-pollicaris, vaginis paucis, 4-6-florus; bracteæ ovaria pubescentia æquantes v. iis breviores. *Sepala* $\frac{1}{3}$ poll. longa, ovata, obtusa, apicibus recurvis; dorsali oblongo. *Petala* sepalo dorsali cohærentia, linearioblonga, falcata, apice rotundata. *Labellum* $\frac{1}{2}$ poll. longum, basi cymbiforme, dein in unguem v. isthmum sacco æquilongum angustatum; alæ forma variæ, plus minusve truncatæ, apice sinuato-crenatæ, sinu lato; saccus callis 2 parvis uncinatis instructus. *Columna* brevissima, rostelli brachiis elongatis; anthera ovoidea, obtusa, rostrata; pollinia obovoidea in caudiculam linearem marginibus inflexis sessilia, glandula parva ovoidea.—J. D. H.

Fig. 1. Flower. 2. Petal. 3. Column and anther. 4. Anther. 5. Pollinia. *All enlarged.*

M.S. del, et lith.

Zeuxine nervosa, Benth.

VOL. II.—PART IV.] [APRIL.

HOOKER'S ICONES PLANTARUM;

OR,

FIGURES, WITH DESCRIPTIVE CHARACTERS AND REMARKS, OF NEW AND RARE PLANTS,

SELECTED FROM THE

KEW HERBARIUM.

FOURTH SERIES.

EDITED FOR THE BENTHAM TRUSTEES BY

DANIEL OLIVER, F.R.S., F.L.S.

EMERITUS PROFESSOR OF BOTANY IN UNIVERSITY COLLEGE, LONDON: LATE KEEPER OF THE HERBARIUM AND LIBRARY, ROYAL BOTANIC GARDENS, KEW.

Under the Authority of the Director of the Royal Botanic Gardens, Kew.

VOL. II.

OR VOL. XXII. OF THE ENTIRE WORK.

PART I. 2101–2125, July 1892.
PART II. 2126–2150, March 1893.
PART III. 2151–2175, October 1893.
PART IV. 2176–2200, April 1894.

DULAU & CO.

37 SOHO SQUARE, LONDON.

1894.

SPOTTISWOODE AND CO. PRINTERS, NEW-STREET SQUARE, LONDON.

Price Four Shillings.

M.S. del et lith.

Zeuxine flava, Benth.

Plate 2176.

ZEUXINE FLAVA, *Benth.*

Orchideæ. Subtribe Spiranthеæ.

Z. (Monochilus) flava, *Benth. in Gen. Plant.* iii. 600; caule elongato medium versus folioso, foliis ovatis acutis, spica glabra v. laxe pilosa multiflora, floribus parvulis, labelli ungue sepalis breviore ultra saccum marginato, alis late oblongo-obovatis v. dolabriformibus integerrimis v. antice dentatis. *Hook. f. Fl. Brit. Ind.* vi. 108. Monochilus flavus, *Wall. in Lindl. Gen. & Sp. Orchid.* 487; *Lindl. in Journ. Linn. Soc.* i. 187. Etæria flava, *Lindl. in Wall. Cat.* 7380 *A. B.*

Hab. Nepal, *Wallich*; Assam, *Griffith*; Naga-hills, *Prain*; Tenasserim, *Helfer, Griffith.* Ceylon; Central Provinces, alt. 3,000 feet, *Thwaites.* Malay Isles.

Caulis ascendens, gracilis v. modice robustus, paucifoliatus. *Folia* 1–1½ poll. longa, sæpissime dissita, sessilia v. breviter petiolata, 5-nervia, vagina paullo inflata. *Scapus* 3–6-pollicaris, pauci-vaginatus, sæpius laxe patentim pilosus; spica gracilis, laxiflora; bracteæ ovaria æquantes v. superantes. *Flores* ad ½ poll. expansi, sessiles, ovario breviores. *Sepala* ⅕ poll. longa, ovata, obtusa, patentia, alba. *Petala* erecta, subdimidiato-oblonga, obtusa, alba. *Labelli* unguis basi saccatus, sacco rubro intus calcaribus 2 interdum tortis instructo, alæ divaricatæ. *Columna* brevissima; callis anticis elongatis parallelis porrectis; anthera ovato-lanceolata; pollinia subgloboso-pyriformia, ope caudiculæ brevis glandulæ parvæ lanceolatæ affixa.

Judging from the specimens from many localities, extending over a large area, this species is a very variable one in the form of the lobes of the lip, though in this matter allowance must be made for the mutilation, by drying, of herbarium specimens. The plate is a reproduction of a drawing in the Herbarium of the Royal Gardens, Ceylon, kindly sent by the late Dr. Thwaites; it represents the flowers as white, with a red lip.—J. D. H.

Fig. 1. Side, and 2. front, view of flower. 3. Column and lip. 4. Lip laid open. 5. Pollinium. *All enlarged.*

Plate 2177.

ZEUXINE AFFINIS, *Benth.*

Orchideæ. Subtribe Spiranthеæ.

Z. (**Monochilus**) **affinis**, *Benth. in Gen. Plant.* iii. 600; caule elongato, foliis ovatis v. ovato-lanceolatis acutis, spica pubescente multiflora, floribus parvulis, labelli ungue ultra saccum marginato sepalis æquilongo, alis obovato-oblongis obovatis subcuneatisve puberulis. *Hook. f. Fl. Brit. Ind.* vi. 108. Monochilus affinis, *Lindl. Gen. & Sp. Orchid.* 487 (*excl. Hab. Courtallum*). Etæria affinis, *Lindl. in Wall. Cat.* 7383. E. flava, *Wall. Cat.* 7380 C. Ætheria mollis, *Lindl. in Journ. Linn. Soc.* i. 184.

Hab. Sikkim Himalaya, in the Terai, *Gamble*; Khasia Hills, alt. 5,000 feet, *Griffith*, &c.; Burma, at Taong-dong, *Wallich*; Tenasserim, at Moulmein, *Lobb*, *Parish*. Penang, *Maingay*.

So closely allied to *Z. flava* (Pl. 2176) as to need no detailed description. It may, indeed, prove to be a form of that plant, but the characters given to it by Lindley are constant, with the exception of the lip not being so large as it is described. The flowers are a good deal larger than in *Z. flava*, more hairy, and the two broadly pyriform pollinia have connate caudicles as long as themselves. The drawing is a reproduction of one in the Herbarium of the Royal Gardens, Calcutta, lent by Dr. King.—J. D. H.

Fig. 1. Side, and 2. front, view of flower. 3. Lip. 4. Column. 5. Pollinia. *All enlarged.*

Plate 2178.

ZEUXINE ABBREVIATA, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

Z. (**Monochilus**) **abbreviata**, *Hook. f. Fl. Brit. Ind.* vi. 109; caule elongato paucifoliato, foliis petiolatis lanceolatis acuminatis, spica laxiflora pubescente, bracteis ovato-lanceolatis ovariis elongatis patulis brevioribus, labelli sacco majusculo costa intus medio 2-lamellata, et basin versus callis 2 magnis instructo, alis parvis ovato-oblongis. Etæria abbreviata, *Lindl. in Wall. Cat.* 7385; *Gen. & Sp. Orchid.* 491 (*Ætheria*). E. lanceolata, *Reichb. f. in Trans. Linn. Soc.* xxx. 142. Dossenia lanceolata, *Lindl. in Journ. Linn. Soc.* iii. 186.

Hab. Nepal, *Wallich*; Khasia Hills, alt. 4,000–5,000 feet, *J. D. Hooker and T. Thomson.*

Herba pedalis, stricta, erecta. *Folia* 2–2½ poll. longa, ovata v. ovato-lanceolata, multinervia, in petiolum ½ poll. longum angustata. *Scapus* spicaque laxifloræ et bracteæ puberulæ; ovaria glaberrima, fere ½ poll. longa. *Flores* ad ⅓ poll. expansi. *Sepala* late ovata, acuminata, rosea. *Petala* semi-orbicularia v. lunata, rosea. *Labelli* straminei unguis ultra saccum anguste alatus. *Columna* brevis, utrinque anguste alata, alis undulatis, processubus 0, rostello brevi; anthera ovata; pollinia elongata, clavata, caudiculis elongatis, corpusculis lamellæformibus; glandula magna.

The plate is a reproduction of a drawing which I made in the Khasia Hills in September 1850.—J. D. H.

Fig. 1. Flower. 2. Sepal. 3. Petal. 4. Lip with the sac laid open. 5. Side, and 6. front, view of column. *All enlarged.*

M S del et lith

Zeuxine modrneinensis. Hkf

ZEUXINE MOULMEINENSIS, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

Z. (**Monochilus**) **moulmeinensis**, *Hook. f. Fl. Brit. Ind.* vi. 109; caule gracili, foliis longe petiolatis ovatis ellipticis v. ovato-lanceolatis, vaginis brevibus laxis sacciformibus, scapo gracili spicaque pauciflora glanduloso-pubescentibus, bracteis ovato-lanceolatis ovario glabro æquantibus v. eod. brevioribus, sepalis petalisque acuminatis, labelli ungue ultra saccum rigido immarginato, sacco intus secus costam late alato et basin versus utrinque callo magno instructo, alis falcato-cuneatis crenatis lacerisve. Etæria moulmeinensis, *Par. et Reichb. f. in Trans. Linn. Soc.* xxx. 142.

Hab. Tenasserim; at Moulmein, *Lobb*, *Parish*.

Caulis unacum spica 12–18 poll. altus; inferne vaginis cupulæformibus instructus. *Folia* pauca, 2–3 poll. longa, multinervia, petiolo gracili pollicari. *Scapi* vaginæ paucæ, remotæ, inferiores foliaceæ, superiores acuminatæ. *Flores* ad $\frac{1}{3}$ poll. expans.; ovaria fere $\frac{1}{2}$ poll. longa. *Sepala* late ovata, acuminata, sicca quasi aristata. *Petala* dimidiato-ovata v. dolabriformia, apicibus recurvis. *Labellum* sepalis longius, sacci intus sub 4-loceilati lateribus extus carunculatis, ungue alisque pubescentibus. *Columna* brevissima, antice crasse bilamellosa, rostello brevi; anthera ovoidea; pollinia pyriformia caudiculæ parvæ oblongæ affixa, corpusculis lamellæformibus.

A remarkable species, with the interior of the sac of the lip much as in *Z. abbreviata* (Pl. 2178) and having the same thick wings on the front of the column, and similar pollinia. The lithograph was made from a dried specimen collected by Mr. Parish in 1868, aided by a pencil sketch by that gentleman.—J. D. H.

Fig. 1. Dorsal, and 2. lateral, sepal. 3. Petal. 4. Column and lip. 5. Lip with the sac laid open. 6. Column. 7. Pollinia. *All enlarged.*

M.S. del et lith.

ZEUXINE LONGIFOLIA, *Hook. f.*

ORCHIDEÆ. Subtribe SPIRANTHEÆ.

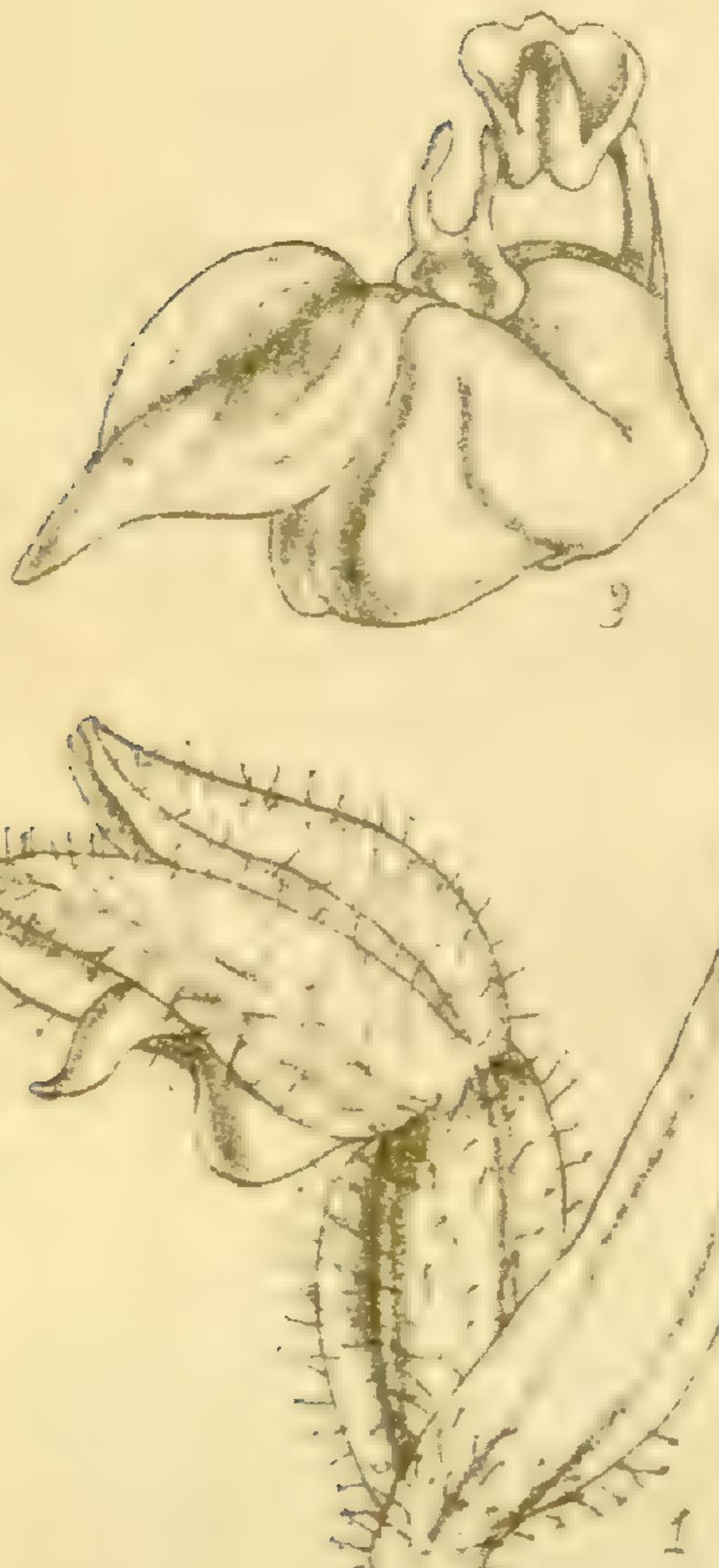
Z. (**Monochilus**) **longifolia**; elata, robusta, foliis lanceolatis acuminatis, spica elongata laxe multiflora, rachi puberula, bracteis ovariis gracilibus glabris paullo brevioribus, sepalis petalisque acuminatis, labelli ungue ultra saccum gracile rigido immarginato, sacco intus secus costam anguste alato et basin versus utrinque callo ovato instructo, alis falcato-cuneatis apice laceris. *Fl. Brit. Ind.* vi. 109. Rhombodia longifolia, *Lindl. in Journ. Linn. Soc.* i. 181. Hetæria longifolia, *Benth. in Journ. Linn. Soc.* xviii. 346.

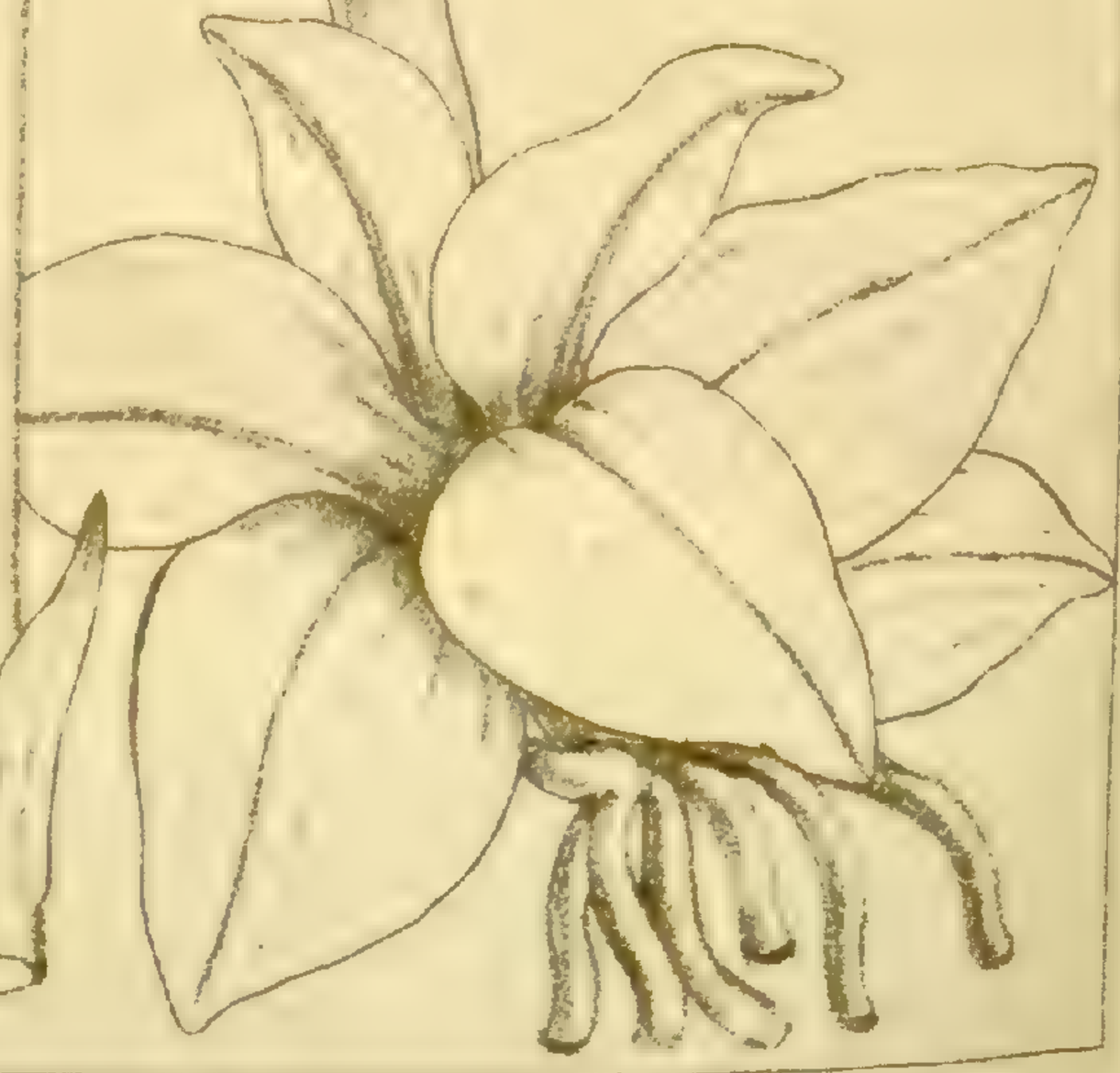
HAB. Sikkim Himalaya; in hot valleys, *J. D. Hooker.*

Caulis 6-8-pollicaris, basi procumbens ramosus, crassitie pennæ olorinæ. *Folia* 6–8 poll. longa, in petiolum amplum 1–1½ poll. longum angustata, costa valida, nervis obscuris, vaginis brevibus. *Spica* 7-pollicaris, breviter pedunculata; flores quaquaversi, ½–⅔ poll. diam.; bracteæ ovato-lanceolatæ; ovaria subrostrata. *Sepala* 1-nervia, sicca quasi aristata, dorsali ovato; lateralia ovato-lanceolata. *Petala* dimidiato-ovata v. semilunata, longe acuminata. *Labelli* saccus antice alte bilobus quasi 2-alatus, lobis rotundatis sacco intus sub 4-locellato, ungue inter lobos projecto breviusculo rigido. *Columna* magna, cava, antice truncata et bicarinata; rostellum minutum; pollinia anguste pyriformia, glandula parva lanceolata sessilia, corpusculis lamelliformibus.

The drawing is from a dried specimen collected by myself. It is the only one known to me.—J. D. H.

Fig. 1. Flower. 2. Lip with the sac laid open. 3. Column. 4. Pollinia. *All enlarged.*





M S del et lith

Goodyera fusca, Hk.f.

Plate 2181.

GOODYERA FUSCA, *Lindl.*

Orchideæ. Subtribe Spirantheæ.

G. fusca, *Lindl. in Wall. Cat. n.* 7395; robusta, foliis radicalibus confertis late ovatis, spica elongata densiflora pubescente, floribus secundis, bracteis flores superantibus, sepalis ovatis, petalis acinaciformibus falcatis obtusis, labelli sacco magno apice inter sepala exserto intus alte 5–7-costato, lamina parva decurva unguiformi v. ovata, columna brevissima. *Fl. Brit. Ind.* vi. 112 (*excl. cit. Hook. f.*) Ætheria fusca, *Lindl. Gen. & Sp. Orch.* 491, *Journ. Linn. Soc.* i. 184. Cystorchis fusca, *Benth. in Gen. Plant.* iii. 599.

Hab. Subalpine Himalaya; Nepal, *Wallich*; Harung, *Munro*; Garwhal, alt. 13,000 feet, *Duthie*; Sikkim, alt. 12,000–14,000 feet, *J. D. Hooker*.

Radices crasse fibrosæ. *Folia* 1–1½-pollicaria, patenti-recurva, subacuta, coriacea; petiolo lato brevi. *Scapus* crassitie pennæ anserinæ, unacum spica 5–10-pollicaris; bracteæ caulinæ spathaceæ; flores ⅓ poll. diam. *Sepala* obtusa. *Labelli* costa apexque incrassatæ. *Columna* lata; anthera parva, stipitata, didyma.

Referred by Bentham to *Cystorchis* (which is an eminently tropical genus of very different habit) on account of the sac of the lip projecting between the lateral sepals, but it wants the characteristic calli in the sac of the lip of that genus, and the habit is entirely that of the temperate *Goodyera*. In 'Fl. Brit. Ind.' when removing *G. fusca* from *Ætheria*, in which Lindley had latterly placed it, I overlooked the fact that this author had originally referred it to *Goodyera*.—J. D. H.

Fig 1. Bracts and flower. 2. Petal. 3. Lip and column. 4. Limb of lip. 5. Lateral view of column. *All enlarged.*

M S del et lith

Goodyera Pratensis Hk ?

Plate 2182.

GOODYERA PRAINII, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

G. Prainii, *Hook f. Fl. Brit. Ind.* vi. 112; foliis petiolatis elliptico-ovatis acutis, spica recurva glanduloso-pubescente, floribus secundis, bracteis lanceolatis flores æquantibus, labello cymbiformi obtuso intus costato v. lamellato, rostelli brachiis elongatis, anthera longe rostrata acuminata.

Hab. Upper Assam, on Pulinabadya in the Naga Hills, alt. 7,200 feet, *Prain*.

Caulis unacum scapo et spica 6-pollicaris, robustus. *Folia* non conferta, 1–2 poll. longa, petiolata, 5-nervia, nervulis anastomosantibus; petiolus $\frac{1}{4}$–$\frac{1}{2}$ poll. longus; vagina brevi, laxa. *Scapus* 2–3-vaginatus, vaginis inferioribus foliaceis; flores erecti, ad $\frac{1}{3}$ poll. lati. *Sepala* lateralia oblongo-lanceolata, dorsali ovato. *Petala* linearioblonga, obtusa. *Labellum* explanatum, ovatum, v. fere lanceolatum, intus 5-costatum. *Columna* brevissima; rostelli brachiis subulatis; anthera orbicularis, longe rostrata.

Very closely allied to Lindley's *G. recurva* from the Khasia Hills, which has linear-lanceolate leaves, a sharply deflexed spike with linear bracts, much smaller flowers, and a beaked lip. I have seen no other specimen than that figured in the accompanying plate, where the rhizome and pseudobulbs of a species of *Liparis* are seen intermixed with the roots of the *Goodyera*.—J. D. H.

Fig. 1. Bract and flower. 2. Dorsal, and 3. lateral, sepal. 4. Petal. 5. Lip and column. 6. Lip laid open. 7. Column. *All enlarged.*

M. S. del et lith.

Goodyera gracilis Hk f.

Plate 2183.

GOODYERA GRACILIS, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

G. gracilis, *Hook. f. Fl. Brit. Ind.* vi. 112; foliis paucis petiolatis elliptico-ovatis, scapo gracili, spica brevi puberula, bracteis floribus brevioribus, labello recto oblongo concavo infra apicem emarginatam breviter rostrato, disco lamella crassa percurso et basi callis 2 pyriformibus instructo.

Hab. Perak, *Father Scortechini.*

Caulis unacum scapo et spica 2–3-bracteata 8–10-pollicaris, gracilis. *Folia* subremota, 1–1½ poll. longa, obtusa v. apiculata, marginibus siccis subcrenulatis, nervis obscuris. *Spica* ½–1-pollicaris, pauciflora, torta; flores conferti, ad ¼ poll. lati. *Sepala* lineari-oblonga v. lanceolata, obtusa, 1-nervia, basi gibba. *Petala* sublinearia, obtusa. *Labellum* sepalis paullo brevius, crassiusculum, marginibus incurvis. *Columna* brevis; rostelli brachia elongata; anthera lanceolata, obtusa; pollinia anguste pyriformia, breviter pedicellata glandulæ parvæ lineari affixa.

The drawing is made from a specimen collected by Father Scortechini. It was accompanied with a rude figure, in which the leaves are represented as more ovate, acute, and strongly crenate.—J. D. H.

Fig. 1. Bract and flower. 2. Lip and column. 3. Interior of lip. 4. Anther. 5. Pollinia. *All enlarged.*

M.S. del et lith.

Goodyera robusta, Hk.f.

Plate 2184.

GOODYERA ROBUSTA, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

G. robusta, *Hook. f. Fl. Brit. Ind.* vi. 113; elata, robusta, foliis petiolatis ovatis ovato-lanceolatisve acutis nervosis, spica elongata multi-laxiflora glanduloso-tomentosa, bracteis flores secundos majusculos æquantibus v. brevioribus, petalis oblique obovato-spathulatis, labello saccato lamina parva ovata terminato, sacco intus setoso.

Hab. Khasia Hills, alt. 4,000 feet, *J. D. Hooker* and *T. Thomson*.

Caulis unacum scapo et spica 18-pollicaris, crassitie pennæ olorinæ. *Folia* 3–4 poll. longa, concoloria, in petiolum $\frac{1}{4}$–$\frac{1}{2}$ poll. longum angustata, 9-nervia, reticulatim venosa. *Scapus* ad 3-bracteatus; spica 7-pollicaris; bracteæ $\frac{1}{2}$ poll. longæ; flores $\frac{2}{3}$ poll. diam. *Sepala* lateralia ovata, basi gibba, dorsali angustiore. *Petala* subfalcata, obtusa. *Labellum* sepalis brevius, lamina disco lamellata. *Columna* brevis, rostelli brachia subulata; anthera lanceolata.

Regarded by Lindley as conspecific with his *G. secundiflora*, also a native of the Khasia Hills, where it was first found by Griffith, and is figured in his 'Icon. Pl. Asiat.' t. 347, f. 2, and subsequently by myself and others. But *G. secundiflora* is a very much smaller fewer-fld. plant, and its leaves are mottled with white. The drawing is made from a unique (dried) specimen collected by Dr. Thomson and myself in 1850.—J. D. H.

Fig. 1. Flower. 2. Petal. 3. Lip and column. 4. Lip laid open. 5. Front view of column. *All enlarged.*

M.S. del et lith.

Goodyera pubescens Kenth.

PLATE 2185.

GOODYERA VITTATA, *Benth.*

ORCHIDEÆ. Subtribe SPIRANTHEÆ.

G. vittata, *Benth. in Herb. Kew.*; glaberrima, robusta, foliis ovatis acutis saturate viridibus nervis albidis, spica multiflora, bracteis lanceolatis flores æquantibus, petalis oblanceolatis subfalcatis obtusis, labello saccato in laminam rostriformem acutam angustato, sacco intus setoso, lamina medio lamellis 2 percursa. Georchis vittata, *Lindl. in Journ. Linn. Soc.* i. 184.

HAB. Sikkim Himalaya, alt. 6,000–9,000 feet, *J. D. Hooker*.

Caulis unacum scapo spicaque 4–6-pollicaris, crassitie pennæ olorinæ. *Folia* $1\frac{1}{2}$–3 poll. longa, carnoso-coriacea, subtus læte rubro-purpurascentia. *Scapus* brevis, bracteis lanceolatis elongatis vaginatus; spica 2–3-pollicaris, secundiflora; flores ad $\frac{1}{2}$ poll. longi. *Sepala* 3-nervia, alba, apicibus roseis, lateralia ovata, acuminata, dorsali oblongo-lanceolata. *Petala* medio 3-nervia, alba. *Labellum* 7-nerve, sub 3-lobum, album. *Columna* brevis, rostelli brachia subulata. *Anthera* ovato-lanceolata; polliniorum caudiculæ breves, glandulæ elongatæ affixæ.

This is the only perfectly glabrous Indian species of *Goodyera* known to me. The plate is taken from a coloured drawing that I made in Sikkim in August 1848.—J. D. H.

Fig. 1. Bract and flower. 2. Dorsal sepal. 3. Petal. 4. Lip and column. 5. Lip laid open. 6. Side view of column. 7. Anther. *All enlarged.*

M. S. del et lith

Goodyera hispida, Lindl.

GOODYERA HISPIDA, *Lindl.*

ORCHIDEÆ. Subtribe SPIRANTHEÆ.

G. hispida, *Lindl. in Journ. Linn. Soc.* i. 183; foliis ovato-lanceolatis acuminatis glaberrimis nervosis, spica glanduloso-hispidula torta, bracteis floribus parvis brevioribus, sepalis ovato-oblongis obtusis, petalis oblongo-obovatis obtusis, labello saccato in laminam brevem subrostriformem angustato, sacco intus sparse setoso. *Hook. f. Fl. Brit. Ind.* vi. 114.

HAB. Khasia Hills; at Churra, alt. 4,000 feet, *J. D. Hooker* and *T. Thomson*.

Caulis unacum scapo et spica 6–7-pollicaris, gracilis. *Folia* 2–2½-pollicaria, breviter petiolata, læte viridia albo striata et reticulata; vagina brevis. *Scapus* 5-bracteatus, superne cum spica pilis rigidiusculis glandulosis instructus, bracteis inferioribus foliaceis; flores ⅓ poll. diam., albi. *Sepala* lateralia ¼ poll. longa. *Petala* obtusa, uninervia. *Labellum* sepalis brevius. *Columna* brevis, rostelli brachiis subulatis; anthera lanceolata; pollinia anguste pyriformia caudiculis brevibus glandulæ magnæ affixa.

G. hispida was originally described by Lindley from the solitary specimen here figured, collected in August 1850. I have seen no other, but have a drawing of evidently the same species in the Herbarium of the Calcutta Botanical Gardens, made in 1875, probably from a cultivated specimen brought from Sikkim.—J. D. H.

Fig. 1. Bract and flower. 2. Dorsal sepal. 3. Petal. 4. Lip and column. 5. Lip laid open. 6. Column. *All enlarged.*

M S. del, et lith.

Goodyera cordata, Benth.

GOODYERA CORDATA, *Benth.*

Orchideæ. Subtribe Spiranthеæ.

G. cordata, *Benth. in Herb. Kew.*: gracilis, foliis ovato-cordatis 3-nerviis, spica pauci-laxiflora puberula, bracteis floribus magnis suberectis brevioribus, sepalis ovato-lanceolatis, petalis dimidiato-obovatis subfalcatis, labello rhomboideo-ovato subsaccato intus setoso. *Nichols. Dict. Gard.* ii. 810. *Hook. f. Fl. Brit. Ind.* vi. 114 (Georchis cordata, *Lindl. Gen. & Sp. Orchid.* 496 (*excl. Habitat.*); *Reichb. f. in Gard. Chron.* 1879, ii. 520.

Hab. Khasia Hills, alt. 3,000–4,000 feet, *J. D. Hooker* and *T. Thomson*; Naga Hills, in Upper Assam, *Prain*. ? Perak, *Father Scortechini*.

Caulis unacum scapo et spica 6–12-pollicaris, radices paucas simplices elongatas crassas emittens. *Folia* $1\frac{1}{2}$–$2\frac{1}{2}$ poll. longa, basi rotundata v. cordata, obtusa v. acuta; petiolo gracili, $\frac{1}{4}$–$\frac{1}{2}$ poll. longo. *Scapus* unibracteatus, unacum bracteis floribusque pallide fusco-ruber; spica 4–8-flora; flores remoti, 1 poll. lati. *Sepala* trinervia, apicibus obtusis. *Petala* subacinaciformia, 3-nervia, obtusa. *Labellum* multinerve, sepalis brevius, apice acutum v. obtusiusculum. *Columna* lata; rostelli brachia lanceolata, valde elongata; anthera longa, e basi rotundata 2-loba fere subulata; pollinia angusta, glandulæ elongatæ lineari **gracili longitudinaliter adnata.**

The plate is the reproduction of a coloured drawing made at Pomrang, in the Khasia Hills, by myself in September 1850. There is a plant very much like it found in Perak by Father Scortechini, in which the setæ nearest the tip, in the interior of the lip, are clavellate. Lindley's habitat of Ceylon (Macrae) is most probably an error; the specimen he described was probably received from the Khasia Hills, and collected by Griffith, who sent orchids to Lindley.—J. D. H.

Fig. 1. Lateral, and 2, dorsal, sepal. 3. Petal. 4. Lip laid open. 5. Column. 6. Anther. 7. Pollinia. *All enlarged.*

Goodyera biflora, Hk. f.

Plate 2188.

GOODYERA BIFLORA, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

G. biflora, *Hook. f. Fl. Brit. Ind.* vi. 114; caule brevi robusto folioso, foliis breviter petiolatis ovatis, spica subsessili 2–4-flora pubescente, bracteis lanceolatis floribus magnis paucis secundis brevioribus, sepalis lanceolatis lateralibus basi connatis, labello basi saccato intus setoso in laminam angustam elongatam producto. Georchis biflora, *Lindl. in Wall. Cat. n.* 7379; *Gen. & Sp. Orchid.* 496.

Hab. Western Himalaya; in the temperate region, from Nepal (*Wallich*) to Simla, *Gamble*, &c.

Caulis ascendens, crassus, radices simplices crassas emittens, unacum spica 3–4-pollicaris. *Folia* 1–2 poll. longa, crassiuscula, obtusa v. acuminata; petiolo $\frac{1}{4}$ poll. longo; vagina brevis, laxa. *Scapus* brevissimus, bracteis elongatis obtectus; spica 3–4-flora; flores fere 1 poll. longi. *Sepalum* dorsale paullo recurvum, lateralia recta. *Petala* linearia, obtusa, falcata, sub 3-nervia. *Labelli* lamina angusta, medio 3-nervis, basi saccata triplo longior. *Columna* brevis, rostelli brachia setiformia valde elongata; anthera subulata, rostello æquilonga. *Capsula* ellipsoidea, teres, matura fere pollicaris.

The largest flowered and fruited Indian species. The drawing was made from a Simla specimen (dried) collected by Mr. Gamble in October 1877.—J. D. H.

Fig. 1. Dorsal, and 2. lateral, sepals. 3. Petal. 4. Lip and column. 5. Lip with the sac laid open. 6. Column. *All enlarged.*

M.S del et lith

Hetæria Helferi, Hk.f.

PLATE 2189.

HETÆRIA HELFERI, *Hook. f.*

ORCHIDEÆ. Subtribe SPIRANTHEÆ.

H. Helferi, *Hook. f Fl. Brit. Ind.* vi. 115; gracilis, foliis petiolatis ovatis acutis, spica elongata multiflora puberula torta, bracteis floribus parvis brevioribus, sepalis ovatis, petalis linearibus obtusis subfalcatis, labello cymbiformi acuto intus utrinque basin versus setulis paucis instructo.

HAB. Tenasserim (on an island of the Mergui Archipelago), *Helfer.*

Caulis ascendens, inferne nudus, unacum scapo et spica 6–10-pollicaris. *Folia* 3–4-pollicaria, 3-nervia, in petiolum subgracilem $\frac{1}{4}$–$\frac{1}{2}$-pollicarem angustata, membranacea, nervis numerosis, primariis 3; vagina brevis, laxa. *Scapus* gracilis, univaginatus, et bracteis plurimis setaceis patentibus infra spicam instructus; spica torta; flores $\frac{1}{4}$ poll. lati. *Labellum* parvum. *Columna* brevis, antice breviter 2-alata; rostelli brachia brevia; anthera ovata, rostrata.

The drawing is from Helfer's specimens.—J. D. H.

Fig. 1. Flower. 2. The same spread open. 3. Lip and column. 4. Column. 5. Anther. *All enlarged.*

M. S. del et lith

Hetæria elongata, Lindl.

Plate 2190.

HETÆRIA ELONGATA, *Lindl.*

Orchideæ. Subtribe Spiranthеæ.

H. elongata, *Lindl. in Wall. Cat. n.* 7384 (Etæria); *Gen. & Sp. Orchid.* 494; elata, gracilis, foliis petiolatis elliptico-ovatis subacutis, spica elongata laxiflora laxe tomentosa, bracteis ovario brevioribus sepalis ovato-oblongis obtusis, petalis obovato-oblongis obtusis, labello columnæ adnato cymibiformi apice rostellato basin versus intus molliter setoso. ? *Trim. Cat. Ceyl. Pl.* 91. *Hook. f. Fl. Brit. Ind.* vi. 116. Goodyera? elongata, *Lindl. Gen. & Sp. Orchid.* 494. ? Rhamphidia elongata, *Thwaites Enum. Pl. Ceyl.* 313.

Hab. Malayan Peninsula? *Finlayson.* ? Ceylon, Hewahette and Ambagamowa Districts, alt. 4,000 feet, *Thwaites.*

Caulis unacum scapo spicaque 18-pollicaris, inferne longe foliosus. *Folia* 2–3½ poll. longa, membranacea, inferiora obtusa; petiolus ¼–¾ poll. longus; vaginæ breves, laxæ, inferiores hyalinæ. *Scapus* pauci-bracteatus. *Spica* 4–6-pollicaris; bracteæ ¼ poll. longæ, lanceolatæ; flores fere ½ poll. lati. *Sepala* 3-nervia. *Petala* columnæ lateribus insertis margine interiore medio incrassata, gibba. *Labellum* superius membranaceum. *Columna* brevis, antice ad basin labelli processubus 2 erectis instructa; rostelli brachia brevia, subulata; anthera ovato-cordata; pollinia subgloboso-pyriformia, caudiculis glandulæ oblongæ affixis.

The adnation of the base of the lip to the sides of the column in this species is curious, as is also the vertical insertion of the petals on the sides of the column. Finlayson's habitat for the plant is uncertain; he botanised (during Sir Stamford Raffles's mission to the Court of Siam) in the Malay Peninsula and Siam, and in N. Cochin China; and Wallich, by whom his specimens were distributed, rarely gave a locality for them in his catalogue. The plate is made from a specimen cultivated at Kew in 1882, which precisely agrees with Finlayson's. I have seen no specimen of the Ceylon plant (which habitat was by oversight omitted in the 'Flora of British India'), unless, as is most probable, the Kew Garden specimen was received from Ceylon.—J. D. H.

Fig. 1. Bract and flower. 2. Petal. 3. Lip and column. 4. Interior of base of lip and portion of column. 5. Pollinia. *All enlarged.*

M S del et lith

Hetæria elata, Hk.f.

Plate 2191.

HETÆRIA ELATA, *Hook. f.*

Orchideæ. Subtribe Spiranthеæ.

H. elata, *Hook. f. Fl. Brit. Ind.* vi. 116; gracilis, elata, glaberrima, foliis longe petiolatis ovato-lanceolatis acuminatis, scapo elongato bracteis plurimis lanceolatis vaginato, spica elongata multi-densiflora, floribus minutis, sepalis lateralibus late ovatis obtusis, petalis linearioblovatis, labello minimo subhemispherico apice rostellato, basi utrinque intus callis 2 et apicem versus lamina transversa instructo.

Hab. Perak, *Father Scortechini*; on Batang Padong, alt. 4,900 feet, *Wray*.

Caulis unacum scapo spicaque 18–24-pollicaris. *Folia* subdistantia, 4–5 poll. longa, in petiolum 2–3 poll. longum gracilem angustata, multinervia, vagina brevi laxa. *Scapus* 6-pollicaris; bracteæ inferiores foliaceæ, spica 3–5-pollicaris; flores quaquaversi, $\frac{1}{6}$ poll. lati glaberrimi. *Labellum* a latere compressum, profunde saccatum, callis ad basin intus conicis, lamina infra-apicali crassiuscula, membrana 2-fida terminata. *Columna* brevis, subquadrata, rostelli brachia brevia; anthera parva, ovata.

I have not satisfactorily ascertained the structure of the interior of the lip and of the column in this species, which can only be made out on living specimens. The tip of the transverse infra-apical plate of the labellum appeared to me to be an orbicular entire membrane; in Miss Smith's drawing it is fleshy and bifid, and the short rostellar arms which I described in 'Fl. Brit. Ind.' are absent in her drawing or replaced (see fig. 5) by two conical projections towards the base of the column. The drawing was made from dried specimens, aided by a sketch by Father Scortechini.—J. D. H.

Fig. 1. Flower. 2 and 3. Sections of portion of lip. 4. Lip and column. 5. Column. *All enlarged.*

M.S del et lith.

Aphyllorchis Prainii, Hk.f

PLATE 2192.

APHYLLORCHIS PRAINII, *Hook. f.*

ORCHIDEÆ. Subtribe DIURIDEÆ.

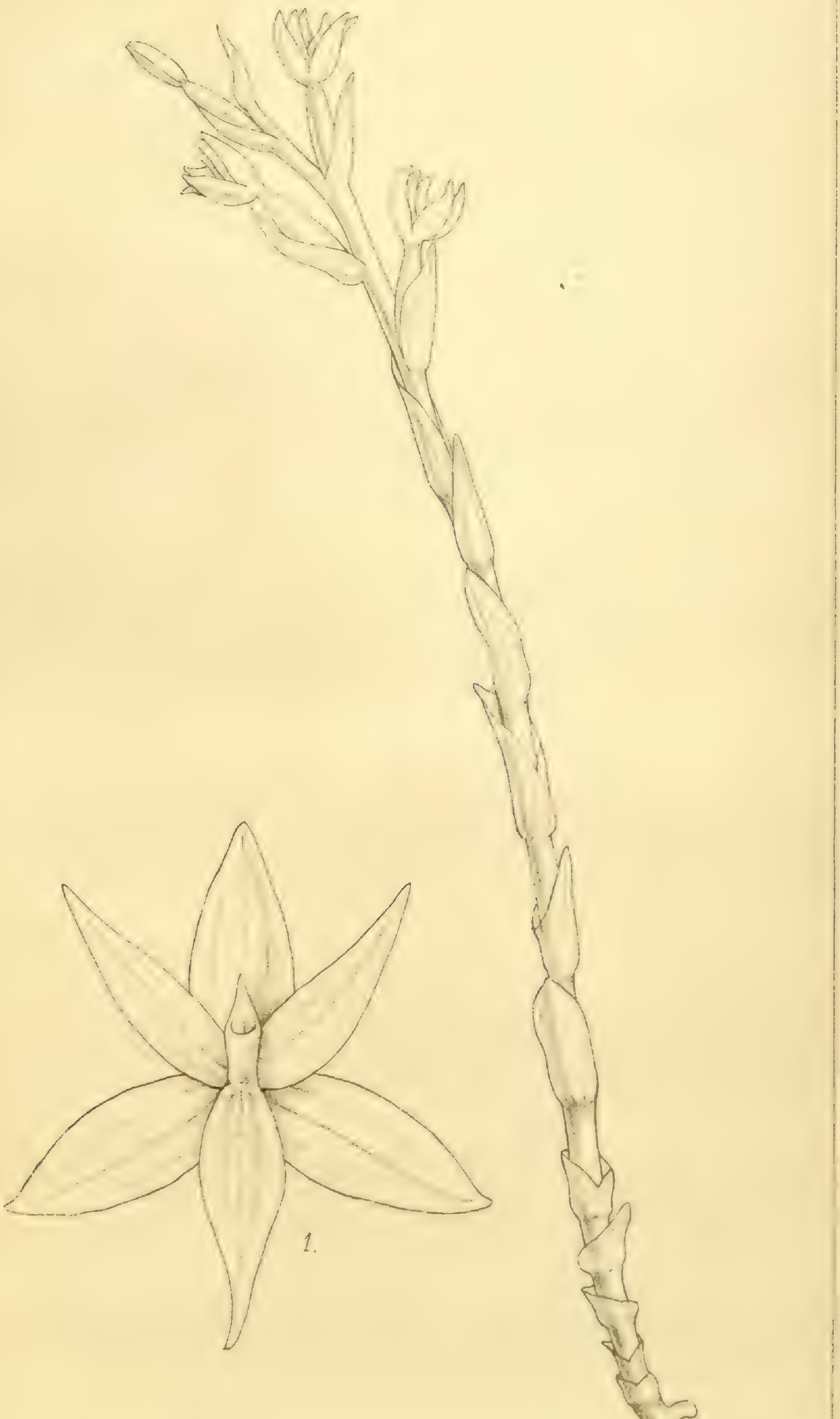
A. Prainii, *Hook. f. Fl. Brit. Ind.* vi. 117; elata, robusta, caule infra medium vaginato, racemo elongato laxifloro, bracteis lineari-lanceolatis ovario multo brevioribus, sepalis petalisque lineari-oblongis obtusis, labello ovato concavo, lobis lateralibus rotundatis terminali æquilongo oblongo obtuso, ungue brevissimo alis 2 parvis erectis triangularibus instructo.

HAB. Upper Assam, on the Naga Hills, *Dr. Prain.*

Caulis 2-pedalis, crassitie pennæ olorinæ, vaginis inferioribus ovatis tubulosis, superioribus lanceolatis. *Racemus* pedalis; bracteæ $\frac{1}{2}$–$\frac{3}{4}$ poll. longæ, patulæ v. recurvæ; ovarium elongatum unacum pedicello brevi pollicare. *Sepala* $\frac{1}{2}$ poll. longa. *Petala* lineari-oblonga, apice rotundata, 3-nervia. *Labellum* sepalis brevius.

I have seen but one specimen of this plant, which belongs to the Herbarium of the Roval Garden, Calcutta; it is closely allied to *A. montana* of Sikkim and Ceylon (which are possibly different species), differing in the winged claw of the lip.—J. D. H.

Fig. 1. Flower. 2. Lip. 3. Column. 4. Anther. *All enlarged.*



1.

M.S. del. et lith.

Aphyllorchis? vaginata, Hk. f.

Plate 2193.

APHYLLORCHIS? VAGINATA, *Hook. f.*

Orchideæ. Subtribe Diurideæ.

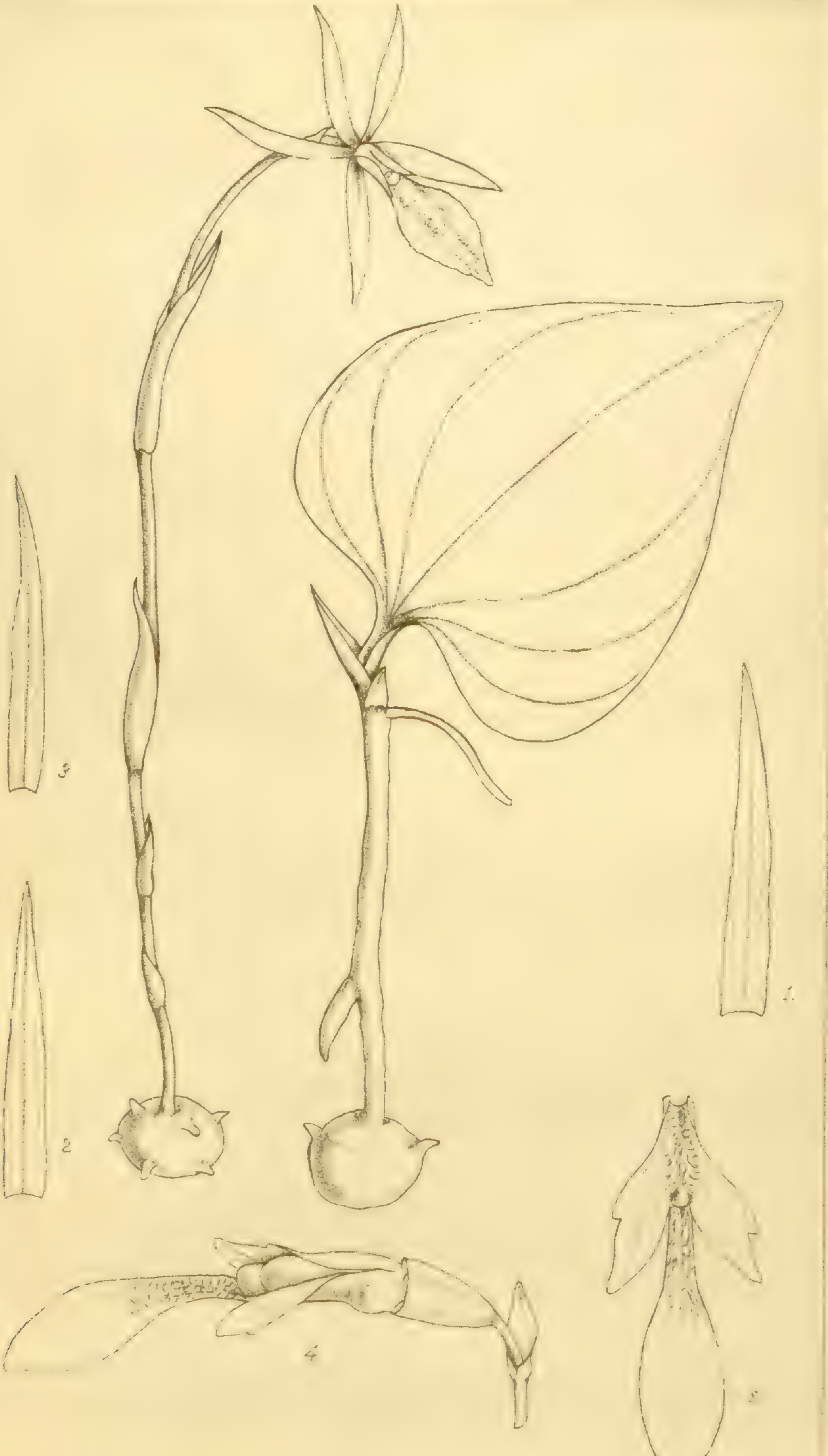
A? vaginata, *Hook. f. Fl. Brit. Ind.* vi. 117; caule robusto vaginis infra medium tubulosis dein ovatis obtusis laxe vestito, spica pauciflora, bracteis ovaria subæquantibus, sepalis oblongo-ovatis obtusis, petalis lanceolatis acuminatis, labello ovato-lanceolato, columna breviuscula.

Hab. Khasia Hills, in woods at Mamloo, alt. 5,000 feet, *J. D. Hooker* and *T. Thomson*.

Caulis 6-pollicaris, erectus; vaginæ $\frac{1}{2}$-pollicares, membranaceæ. *Bracteæ* infimæ oblongo-lanceolatæ, superiores angustiores. *Flores* erecti, luride rubri. *Sepala* $\frac{1}{3}$ poll. longa, 3-nervia. *Petala* 1-nervia. *Labellum* sepalis æquilongum, sessile, planum, ecallosum.

I found only one specimen of this curious plant, which in its dried state is difficult of examination. The plate represents it in a supposed restored condition—that is, considerably enlarged in all its parts—and with the lip much narrower than in the flower I examined and described in the 'Flora of British India,' in which it is broader than the sepals. It differs from the previously described species of the genus in the lip and column; but it is not safe to draw any conclusions from a solitary (probably distorted) specimen, the object in figuring which is to direct the attention of Indian botanists to a very curious plant, presumably a saprophyte.—J. D. H.

Fig. 1. Flower. *Enlarged.*



M. S. del et lith.

Pogonia juliana, Wall.

Plate 2194.

POGONIA JULIANA, *Wall.*

Orchideæ. Subtribe Arethuseæ.

P. juliana, *Wall. Cat. n.* 7399; folio ovato-cordato glaberrimo, scapo 1-floro, sepalis petalisque anguste oblanceolatis acuminatis, labelli lobis lateralibus oblongis subfalcatis integris v. utroque latere unidentatis, intermedio elliptico- v. rhombeo-lanceolato basi pubescente. *Lindl. Gen. & Sp. Orchid.* 414. *Hook. f. Fl. Brit. Ind.* vi. 119. *Thw. Enum. Pl. Zeyl.* 430. *Trim. Cat. Ceyl. Pl.* 819. Epipactis juliana, *Roxb. Fl. Ind.* iii. p. 453.

Hab. Assam (*Ic. in Herb. Calcutt.*). Silhet, *C. B. Clarke, Lowe.* Lower Bengal, *Roxburgh,* &c. Ceylon, in the Doombera District, *Thwaites.*

Tuber parvum, globosum. *Folium* ad apicem caulis 2–3 uncialis hic illic radices emittentis, solitarium breviter petiolatum, 2–3 poll. longum et latum, 5–7-nerve, subtus viride et purpurascens. *Scapus* 2–6-pollicaris, spathis ensiformibus acuminatis instructus; bractea parva, ovario breviter pedicellato brevior. *Flos* $1\frac{1}{2}$–$2\frac{1}{2}$ poll. diam. *Sepala* et petala patentia, viridia. *Labelli* lobi laterales albi, terminale albo, roseo-irrorato.

Amongst a most valuable set of drawings of Moulmein orchids, presented by the Rev. C. Parish to the Herbarium of Kew, is a figure of a *Pogonia* (*P. cuprea*, Par. MS.) much resembling *P. juliana*, but with purple-green sepals and petals, and a much shorter terminal lobe of the lip. It represents a flower only.—J. D. H.

The drawing here given is a copy of a coloured one in Roxburgh's collection.

Fig. 1. Lateral, and 2, dorsal, sepal. 3. Petal. 4. Bract and flower, with the sepals removed. 5. Lip. *All enlarged.*

M.S del et lith

A. Pogonia macroglossa, Hk.f.
B ——— maculata, Par. & Reichb.f.

Plate 2195.

A. POGONIA MACROGLOSSA, *Hook. f.*
B. POGONIA MACULATA, *Par. and Reichb. f.*

Orchideæ. Subtribe Arethuseæ.

A. **P. macroglossa**, *Hook. f. Fl. Brit. Ind.* vi. 120; caule unifloro, sepalis lineari-lanceolatis acuminatis, labello sepalis longiore lineari-oblongo obtuso utrinque medium versus unidentato v. lobis parvis lateralibus instructo.

Hab. Sikkim Himalaya, in hot valleys, *J. D. Hooker;* at Tumlong, alt. 6,500 feet, *C. B. Clarke.*

Folium tuberque ignota. *Scapus* 3-6-pollicaris, flexuosus, infra medium spathis paucis tubulosis instructus. *Bractea* parva. *Sepala* 1–1¼ poll. longa, alba roseo-irrorata. *Petala* lineari-oblanceolata. *Labellum* 1½ poll. longum, rectum, basi gibbum. *Columna* gracilis.

I have seen only two specimens of this very large-flowered species; they present slight differences in the lip, as shown in the drawing, which represents a specimen collected by myself in Sikkim.—J. D. H.

B. **P. maculata**, *Par. and Reichb. f. in Trans. Linn. Soc.* xxx. 143; folio orbiculari-cordato glabro plicato, scapo 2-floro, floribus cernuis, sepalis petalisque anguste oblanceolatis, labello sepalis æquilongo obovato-lanceolato 3-lobo, basi breviter obtuse calcarato, lobis ciliolatis obtusis. *Hook. f. Fl. Brit. Ind.* vi. 120.

Hab. Tenasserim; near Moulmein, *Parish.*

Tuber globosum radicellis conicis quasi tuberculatum. *Caulis* robustus, 3 poll. longus, radices validas simplices emittens. *Folium* ad 2 poll. diam., sub 13-nerve, plicatum, viride, plicis apice late triangularibus, sinubus macula atropurpurea notatis. *Scapus* 5-6-pollicaris, vaginis paucis instructus; bracteæ minutæ. *Sepala* et *petala* ¾ poll. longa, viridia. *Labellum* flavo-viride, nervis saturatioribus. *Columna* apice subclavata; anthera purpurea.

The plate is from a coloured drawing by Mr. Parish.—J. D. H.

Plate 2195 A, *P. macroglossa.* Fig. 1. Flower. 2. Pedicel, ovary, and lip. *Both enlarged.*
Plate 2195 B, *P. maculata.* Fig. 3. Lip. 4. Column. 5. Anther. *All enlarged.*

M.S del et lith

Gastrodia exilis, Hk. f.

PLATE 2196.

GASTRODIA EXILIS, *Hook. f.*

ORCHIDEÆ. Subtribe ARETHUSEÆ.

G. exilis, *Hook. f. Fl. Brit. Ind.* vi. 123; gracillima, glaberrima, caule basi tuberoso, vaginis brevibus remotis, racemo paucifloro, bracteis minutis, floribus erectis, perianthii tubo anguste subcampanulato, sepalis orbiculatis crispatis petalis dimidio minoribus, labelli breviter unguiculati lamina oblongo-ovata marginibus crispatulis, disco apicem versus lamellis triangularibus erectis et basi callis 2 reniformibus instructo.

HAB. Khasia Hills, at Amwee, in grassy places, alt. 3,000 feet, *J. D. Hooker* and *T. Thomson*.

Tuber oblongum, $\frac{1}{2}$–$\frac{3}{4}$ poll. longum. *Caulis* 6–12-pollicaris, filiformis. *Flores* $\frac{1}{4}$ poll. longi, cylindracei, albidi. *Labelli* unguis brevis, laminæ apex exserta. *Columna* apice truncata, tridentata. *Capsula* immatura fusiformis.

I have had great difficulty in analysing the flowers of this singular species. The figure of the lip (3) is as that organ appeared to Miss Smith on a careful dissection. When describing it in the 'Flora of British India' I had not observed the reniform calli at its base.—J. D. H.

Fig. 1. Flower. 2. The same with the perianth laid open. 3. Lip. 4. Column. 5. Anther. *All greatly enlarged.*

M.S.del et lith.

A Orchis spathulata, Reichb.f.
B. ——— Stracheyi, Hk.f.

Plate 2197.

A. ORCHIS SPATHULATA, *Reichb. f.*
B. ORCHIS STRACHEYI, *Hook. f.*

Orchideæ. Subtribe Ophrydeæ.

A. **O. spathulata,** *Reichb. f. mss.*; folio solitario radicali longe petiolato elliptico, scapo nudo, spica pauciflora, bracteis magnis ovato-oblongis obtusis, sepalis petalisque patentibus, labello late rhombeo-cuneato v. elliptico integro v. obscure 3-fido, calcare recto ovario breviore fusiformi. *Hook. f. Fl. Brit. Ind.* vi. 127. Gymnadenia spathulata, *Lindl. Gen. & Sp. Orchid.* 280.

Hab. Alpine Himalaya, alt. 11,000–13,000 feet, from Garwhal, *Royle, &c.*, to Sikkim, *J. D. Hooker.*

Caulis brevis, crassiusculus, basi decumbens radices crassas emittens, superne unacum folio vaginis cylindraceis truncatis involutus. *Folium* 1–3-pollicare, obtusum, crassiusculum, in petiolum validum laminæ æquilongum angustatum. *Scapus* 3–5-pollicaris, validus, apice 2–4-florus; bracteæ foliaceæ flores superantes; flores ½ poll. diam., purpurei. *Sepala* ovato-oblonga, obtusa v. lateralia subacuta. *Petala* elliptico-oblonga, obtusa. *Labellum* forma varium, crenulatum, calcare plus minusve elongato. *Anthera* ellipsoidea, loculis parallelis.—J. D. H.

B. **O. Stracheyi,** *Hook. f. Fl. Brit. Ind.* vi. 128; folio solitario radicali petiolato elliptico v. obovato, scapo nudo paucifloro, bracteis magnis ovato-oblongis obtusis, sepalis petalisque patentibus, labello sepalis longiore late cuneato ad medium trifido lobis obtusis, calcare ovario longiore incurvo obtuso.

Hab. Western Himalaya; Garwhal, near Rogile, alt. 11,000 feet, *Strachey* and *Winterbottom* (No. 35, *Gymnadenia puberula*).

Closely allied to *O. spathulata* (Fig. A), differing in the broadly 3-lobed lip and long incurved spur. In the 'Flora of British India' I have suggested the possibility of its being a hybrid between *O. spathulata* and *O. Chusua*, Don, from its having the leaf of the first-named species and the lip and spur of the second. Unfortunately tubers of both *spathulata* and *Stracheyi* are wanting, and the appearance of the dried specimens suggests their having had subterranean rhizomes. The tubers of *O. Chusua* are oblong, entire, and the leaves linear or linear-lanceolate. A good series of specimens of these three species is wanted to clear up their relations to one another.—J D. H.

Plate 2197 A, *O. spathulata.* Fig. 1. Lateral, and 2 dorsal, sepal. 3. Lip. 4. Column and spur. 5. Front view of column. *All enlarged.*

Plate 2197 B, *O. Stracheyi.* Fig. 6. Sepal. 7. Petal. 8. Lip. 9. Anther. *All enlarged.*

M S del et lith

Herminium fallax, Lindl.

Plate 2198.

HERMINIUM FALLAX, *Lindl.*

Orchideæ. Subtribe Ophrydeæ.

H. fallax, *Lindl. in Wall. Cat. n.* 7412; gracilis, foliis 1–2 linearibus lineari-lanceolatisve, spica elongata multiflora, floribus subsecundis, bracteis ovariis brevioribus, sepalis ovato- v. oblongo-lanceolatis, petalis erectis angustis falcatis, labello sæpius oblongo 3-lobo, lobis obtusis basi saccato, sacco polymorpho. *Hook. f. Fl. Brit. Ind.* vi. 129. Peristylus fallax, *Lindl. Gen. & Sp. Orchid.* 298. Cybele, *Falc. in Lindl. Veg. Kingd.* 193, c. C. alpina, *Falc. mss.*

Hab. Alpine and subalpine Himalaya, alt. 7,000–12,000 ft., from Garwhal to Sikkim, *Wallich*, &c.

Caulis unacum spica 4–18-pollicaris, medio 1–2-foliatus, vaginis superioribus aphyllis 1–2 inferioribus subfoliaceis. *Folium* plerumque solitarium, 2–5-pollicare, $\frac{1}{2}$–1 poll. latum, acutum, rarius folia subradicalia adsunt. *Spica* 2–5-pollicaris, densi- v. laxiflora; bracteæ inferiores longiores, lanceolatæ; ovarium $\frac{1}{6}$–$\frac{1}{4}$ poll. longum, subrostratum. *Sepala* $\frac{1}{6}$-poll. longa, 1-nervia. *Petala* forma varia. *Labellum* nunc sepalis multo brevius crassiusculum breviter lobatum, nunc angustum tenuius 3-lobum lobis brevibus v. elongatis, limbus basi truncatus v. angustatus; calcar incurvum, subdidymum subglobosum v. clavellatum. *Anthera* parva, oblonga, loculis parallelis, tubulis 0; pollinia obovoidea, glandulis parvis nudis nitidis sessilia v. caudicula brevi interposita.

A very common Himalayan plant of the temperate region, and exceedingly variable in stature, foliage, lip and sac; as is the case, more or less, with the other species of that country. At p. 128 of the 'Flora of British India,' I have stated that there is no other character by which *Herminium* can be distinguished from *Habenaria* but the absence of a well-developed spur. It was, indeed, my original intention to reduce it to the latter genus, which accounts for my oversight in citing myself (in 'Fl. Brit. Ind.') as the authority for *H. fallax*, instead of Lindley. The involved synonymy which this would have entailed, however, induced me to refrain from so doing. The drawing is made from a Sikkim specimen collected by myself at about 10,000 feet.—J. D. H.

Fig. 1. Flower. 2. Lip and column. 3 and 4. Forms of lip. 5. Column. 6. Pollinium. *All enlarged.*

M. S. del et lith.

A. Herminium Durhiei, Hk. f.
B _____ orbiculare, Hk. f.

Plate 2199.

A. HERMINIUM DUTHIEI, *Hook. f.*
B. H. ORBICULARE, *Hook. f.*

Orchideæ. Subtribe Ophrydeæ.

A. H. Duthiei, *Hook. f. Fl. Brit. Ind.* vi. 130; foliis basin versus caulis geminis linearibus oblongis oblanceolatisve, spica multiflora, floribus subsecundis, bracteis ovario brevioribus, sepalis obtusis, lateralibus ovato-lanceolatis quam dorsale late oblongo brevioribus, petalis carnosis acutis, labello ovato acuto v. ovato-cordato v. orbiculari-ovato apice angustato, sacco subgloboso.

Hab. Western Himalaya; Garwhal, near the Khasi Pass, alt. 11,000–12,000 feet, *Duthie*.

Caulis unacum spica 2–6-pollicaris. *Folia* 2–3½-pollicaria, acuta v. acuminata, basi vagina inclusa. *Scapus* validus, curvus, nudus; spica 2–4-pollicaris; ovaria turgida, curvula, subrostrata; flores ⅛ poll. diam. *Petala* polymorpha, linearia oblonga v. ovata, curva, acuminata. *Anthera* oblonga, loculis parallelis; pollinia clavata, stipitibus obconicis corneis sessilia; staminodia elongata, patentia; rostellum parvum, subulatum, erectum.

In the 'Flora of British India' (p. 128) I have alluded to the singular forms which the glands of the pollinia take in several species of this genus, from simple small glabrous or oblong glands to extinguisher-shaped hollow coriaceous brown shining bodies, sometimes split down one side, into which the caudicle of the pollinium descends, and into the base of which this latter is inserted. This body is a development of the gland itself, and, like it, lies exposed at the base of the anther-cell.

B. **H. orbiculare**, *Hook. f. Fl. Brit. Ind.* vi. 130; caule gracili, 1–2-foliato, foliis remotis parvis oblanceolatis, bracteis ovario brevioribus, floribus minutis secundis, sepalis orbiculari-oblongis obtusis, petalis late oblongis, labello orbiculari carnoso basi saccato.

Hab. Sikkim Himalaya; Rungboo, in the Chumbi Valley, *King's Collector*.

Caulis unacum spica 4–6-pollicaris. *Folia* 1–1½ poll. longa. *Scapus* pauci-vaginatus; flores $\frac{1}{10}$ poll. diam. *Sepala* et petala 1-nervia membranacea. *Anthera* brevis, loculis paullo divergentibus; pollinia clavata, glandulæ orbiculari inserta; staminodia v. processus stigmatiferi sessilia; rostellum minutum.

A curious little species, of which more specimens are much wanted for satisfactory description.—J. D. H.

Plate 2199 A, *H. Duthiei*. Fig. 1. Flower. 2. Petal. 3. Lip and column. 4 Another form of lip. 5. Pollinium. *All enlarged.*
Plate 2199 B, *H. orbiculare*. Fig. 6. Flower. 7. Upper, and 8. lower, surface of lip. 9. Column. *All enlarged.*

M.S del et lith.

Habenaria andamanica, Hk.f.

PLATE 2200.

HABENARIA ANDAMANICA, *Hook. f.*

ORCHIDEÆ. Subtribe OPHRYDEÆ.

H. (**Ate**) **andamanica**, *Hook. f. Fl. Brit. Ind.* vi. 134; subelata, foliis medium versus caulis conferta ovato-lanceolata acuta, racemo laxe multifloro, bracteis lanceolatis ovariis gracilibus brevioribus, floribus amplis, sepalis longe aristatis, petalorum segmento superiore angusto inferiore in laminas 3 filiformes secto, labelli lobis lateralibus flabellatim multifidis, intermedio 3-secto segmentis omnibus filiformibus, calcare ovario breviore.

HAB. Andaman Islands, *Parish.*

Tubera globosa. *Caulis* 1–1½-pedalis. *Folia* 3–4-pollicaria, sessilia. *Racemus* 6–8-pollicaris; bracteæ 1–1¼-pollicares, lanceolatæ. *Sepala* ½ poll. longa, lineari-oblonga. *Antherarum* tubuli loculos subæquantes, porrecti; glandulæ polliniorum minutæ; stigmatis brachia elongata, subcylindracea, rostellum erectum.

A handsome species, most nearly allied to the Ceylon and Travancore *H. macrostachya*, Lindl., which has longer bracts and subequal segments of the lip. The specimen from which the drawing is made is unique.—J. D. H.

Fig. 1. Sepal. 2. Petal. 3. Column. *All enlarged.*

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